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# **Service Maintenance Manual**

## **CELEBRIS GL & GL<sup>ST</sup> PC**

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October 1995

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## October 1995

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# Preface

The Digital CELEBRIS GL and GL<sup>ST</sup> PC Family Service Maintenance Manual is a troubleshooting guide that can be used for reference when servicing the Digital CELEBRIS GL and GL<sup>ST</sup> line of PC's.

Digital Equipment Corporation reserves the right to make changes to the Digital CELEBRIS GL and GL<sup>ST</sup> series without notice. Accordingly, the diagrams and procedures in this document may not apply to the computer(s) you are servicing since many of the diagnostic tests are designed to test more than one product.



## CAUTION

**Digital recommends that only A+ certified engineers should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to support subassembly/module level exchange. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indications of component replacement or printed wiring board modifications may void any warranty or exchange allowances.**

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# Chapter 1

# Product Description

## Product Introduction

The Digital CELEBRIS GL and GL<sup>ST</sup> computers are high-performance personal computers featuring the latest in computing technology. They can be used as stand-alone computers, as clients, or as servers in a network environment. Developed using the following state-of-the-art technology, these computers are the most value packed Slimline (desktop) and Small Tower (deskside) computers in their class:

- ◆ **Microprocessor**
  - ◇ Pentium CPU at 90 MHz, 120 MHz and 133 MHz for Slimline Computers. (CELEBRIS GL)
  - ◇ Pentium CPU at 100 MHz, 120 MHz and 133 MHz for Small Tower Computers (CELEBRIS GL<sup>ST</sup>).
- ◆ **Memory**
  - ◇ 16 MB of fast ECC or EDO DRAM to handle even the biggest job and multi-tasking. This is standard and is upgradable to 128 MB with 32-MB SIMMS.
- ◆ **Plug and Play**
- ◆ **PCI Local Bus**
  - ◇ The computer's PCI architecture represents the latest in local bus technology.
- ◆ **Onboard Video**
  - ◇ *Matrox Storm* PCI graphics controller supports 2D and 3D performance using Windows RAM (WRAM) technology. Built-in video playback acceleration to enhance multimedia applications. 2 MB WRAM memory is standard and is upgradable to 8 MB.
- ◆ **Onboard Ethernet**
  - ◇ Single 21040 Ethernet controller for PCI bus; PCI bus clock up to 33 MHz, independent of network clock. Full duplex operation supports IEEE, ANSI, and Ethernet standards. Offers 10-BaseT and AUI connections to corporate networks.
- ◆ **External Cache**
  - ◇ Onboard cache controller supports up to 512 KB direct-mapped, write-back (standard or pipeline burst) secondary cache via 160-pin cache module design.
- ◆ **Onboard Audio**
  - ◇ 16-bit stereo sound circuit supports business and *SoundBlaster Pro* applications. 20 voice FM music synthesizer. The internal computer speaker is connected to the audio system with volume control (selected in Bios Setup) as the default output device.

## Product Models Information

### CELEBRIS GL Models

<i>Product</i>	<i>Model</i>	<i>Memory</i>	<i>Cache</i>	<i>HDD</i>	<i>Options</i>
<b>CELEBRIS GL 590</b>	FR-952WW-AD	16MB	256KB	None	None
<b>CELEBRIS GL 590</b>	FR-952WW-MC	16MB	256KB	845MB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL 5120</b>	FR-954WW-AD	16MB (EDO)	256KB	None	None
<b>CELEBRIS GL 5120</b>	FR-954WW-MC	16MB (EDO)	256KB	845MB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL 5120</b>	FR-954WW-MD	16MB (EDO)	256KB	1.2GB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL 5133</b>	FR-955WW-AD	16MB (EDO)	256KB	None	None
<b>CELEBRIS GL 5133</b>	FR-955WW-MC	16MB (EDO)	256KB	845MB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL 5133</b>	FR-955WW-MD	16MB (EDO)	256KB	1.2GB E-IDE	Quad Speed E-IDE CD-ROM

### CELEBRIS GL<sup>ST</sup> Models

<i>Product</i>	<i>Model</i>	<i>Memory</i>	<i>Cache</i>	<i>HDD</i>	<i>Options</i>
<b>CELEBRIS GL<sup>ST</sup> 5100</b>	FR-963WW-AD	16MB (EDO)	256KB	None	None
<b>CELEBRIS GL<sup>ST</sup> 5100</b>	FR-963WW-MC	16MB (EDO)	256KB	845MB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL<sup>ST</sup> 5120</b>	FR-964WW-AD	16MB (EDO)	256KB	None	None
<b>CELEBRIS GL<sup>ST</sup> 5120</b>	FR-964WW-MC	16MB (EDO)	256KB	845MB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL<sup>ST</sup> 5120</b>	FR-964WW-MD	16MB (EDO)	256KB	1.2GB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL<sup>ST</sup> 5133</b>	FR-965WW-AD	16MB (EDO)	256KB	None	None
<b>CELEBRIS GL<sup>ST</sup> 5133</b>	FR-965WW-MC	16MB (EDO)	256KB	845MB E-IDE	Quad Speed E-IDE CD-ROM
<b>CELEBRIS GL<sup>ST</sup> 5133</b>	FR-965WW-MD	16MB (EDO)	256KB	1.2GB E-IDE	Quad Speed E-IDE CD-ROM

# Chapter 2 System Utilities & Configuration

## System Utilities

This chapter describes how to use the utilities and video drivers supplied with the CELEBRIS GL and GL<sup>ST</sup> computer. In most cases, these utilities and drivers have been factory installed as image files on the hard disk drive. However, before attempting to use any of the utilities or install any of the video drivers, you must first copy all image files onto diskettes using the Create Backup Diskettes from “Getting Started”. Afterwards, use the diskettes you created to run any of the utility programs and/or install drivers.

### Multilingual BIOS Diskette (PHLASH.EXE)

The following files are supplied on the Multilingual BIOS Diskette:

- ◆ PHLASH.EXE and associated runtime files.
- ◆ Binary multilingual BIOS images.
- ◆ PHLASH\*\*.BAT files, where \*\* represents the multilingual BIOS. Run this file to upgrade the computer's BIOS to the desired language.

CELEBRIS GL computers are equipped with flash memory. This means that users can restore the computer's BIOS simply by running the PHLASH.EXE utility. Users can also upgrade the computer's BIOS to future releases by running PHLASH.EXE along with any flash BIOS update diskette if necessary.

## Before Using PHLASH.EXE

Before you can upgrade the BIOS using PHLASH.EXE, you need to make a backup diskette (crisis recovery diskette) of the old BIOS. It is important that you make this diskette. Should you find the BIOS upgrade unsuccessful, you can use this crisis recovery diskette, to return to the old BIOS. The following are needed to create this diskette:

- ◆ A blank 3½-inch 1.44 MB formatted diskette
- ◆ A diskette copy of the Phlash Utility diskette

## Creating a Crisis Recovery Diskette

Make sure you create a crisis recovery diskette before upgrading the BIOS. If the upgrade is unsuccessful, you might find the computer no longer has a working BIOS. Without a working BIOS you might not be able to operate the computer. With a crisis recovery diskette, you can always return to the previous level of BIOS.

To create this diskette:

- 1) Turn on the computer and allow the POST to complete.  
If POST detects an error, refer to “*Troubleshooting*” to identify and determine how to correct the problem. After the problem has been resolved, restart the computer.
- 2) Insert the Phlash Utility diskette into the diskette drive and enter:
  - a:*
  - dir/upgrade*
 The entry should show that the following files are on the diskette:
  - MINIDOS.SYS
  - PHLASH.EXE
  - MAKEBOOT.EXE
  - MAKECRD.EXE
  - DEVTBLS.DAT
  - PHLASH.INI
  - CELEBRIS.ROM
- 3) Create an upgrade directory on the hard disk drive. For example, if the hard disk drive is c:>, enter at the DOS prompt:
  - c:*
  - md upgrade*
- 4) Copy the files from the Phlash Utility diskette into the upgrade directory on the hard disk drive. For example, from the DOS prompt enter:
  - copy a:\upgrade|\*.\* c:\upgrade|\*.\**
- 5) Insert a blank formatted diskette into drive A.
- 6) On drive A, make a directory for the files previously copied. For example, from the DOS prompt enter:
  - a:*
  - md ugrade*
- 7) Return to the hard disk drive and copy the files. From the DOS prompt that is:
  - cd\upgrade*
  - makecrd*
- 8) The makecrd command prompts you for a recovery diskette to be placed in drive A and then automatically copies the files to drive A.
- 9) Remove the crisis recovery diskette from drive A and store it in a safe place.

## Using the Crisis Recovery Diskette

The crisis recovery diskette must be used only if the computer's BIOS fails or if a BIOS upgrade was unsuccessful. If the computer's BIOS failed to flash properly or is corrupted in some way, the following sequence of events occur:

- 1) POST detects an error after a normal boot cycle or a BIOS upgrade.  
This message(s) appears on the monitor screen to inform you that the computer's BIOS did not flash properly or has failed.
- 2) The BIOS in the bootblock memory automatically executes.
- 3) The computer attempts to find the correct BIOS files to execute the correct boot cycle.
- 4) The computer beeps several times.  
This means the computer cannot properly boot using the BIOS files that were just copied during the flash update.
- 5) The computer's diskette drive begins searching for the crisis recovery diskette to restore the BIOS to its previous known state.

Restore the computer's BIOS to its previous known state by performing the following procedures:

- 1) Turn off the computer, unlock and remove the cover, and set the recovery jumper (**J22**) to "**Recovery Mode**" (**jumper on**).  
**Jumper J22** controls whether the computer is in recovery or normal operation.
- 2) Replace the cover, insert the crisis recovery diskette into drive A, and then power on the computer. The computer automatically boots from drive A and upgrades the BIOS. Upon completion, the computer sounds a beep code and attempts to restart.
- 3) After the BIOS is restarted, turn off power to the computer and remove the crisis recovery diskette from drive A.
- 4) Remove the cover and set the recovery jumper (**J22**) to "**Normal**" (**jumper off**).
- 5) Replace and lock the cover and turn the power back on for normal operation.

## Upgrading The Computer's BIOS

Perform the following steps to update the computer's BIOS in the flash memory to a new updated one.

---

**NOTE** Only upgrade the computer's BIOS if you have a reason to do so.

---

- 1) Create a crisis recovery diskette if you have not already done so.  
Refer to "*Creating a Crisis Recovery Diskette*" previously described.
- 2) Insert the multilingual BIOS diskette in the diskette drive.
- 3) Turn on the computer and allow the POST to complete.  
The computer now boots from the multilingual BIOS diskette.  
If POST detects an error refer to Chapter 4, "*Computer Messages*", and take the appropriate steps to correct the problem.
- 4) At the MS-DOS prompt, type: **a:\upgrade\plash**  
A screen appears on the monitor warning you that you are about to erase the computer's BIOS.
- 5) Press **[Enter]** if you want to continue. If not, press **[Esc]** to cancel.  
Once you press **[Enter]**, PHLASH.EXE automatically updates the computer's BIOS.  
After the flashing process completes, the computer automatically reboots itself so changes immediately take effect.
- 6) Remove the multilingual BIOS diskette.

## Configuring the Boot Block Jumper



### CAUTION

Read this procedure carefully and be sure you understand it before completing the steps listed in this procedure.

- 1) Perform the following steps to configure the boot block jumper (**J6**).
- 2) Turn off power to the computer.
- 3) Disconnect external devices and power.
- 4) Unlock and remove the cover.
- 5) If this is the CELEBRIS GL (Slimline) computer, Open the drive bay subassembly.
- 6) Change the jumper setting of **J6** from **position 1-2** to **position 2-3**.
- 7) Close the drive bay subassembly.
- 8) Replace and lock the cover.
- 9) Reconnect external devices and restore power.
- 10) Repeat steps 2-5 of the BIOS update procedure.
- 11) Repeat steps 1-4 of this procedure.
- 12) Restore the jumper setting of **J6** to **position 1-2**.
- 13) Repeat steps 6-8 of this procedure. The BIOS should now be successfully upgraded.

## Upgrading the Computer's BIOS to a New Language

Perform the following steps to upgrade the computer's BIOS to a new language:

- 1) Turn on the computer and allow POST to complete.
- 2) If POST detects an error refer to Chapter 4, “*Computer Messages*”, and take the appropriate steps to correct the problem. After the problem has been resolved, restart the computer.
- 3) Insert the multilingual BIOS diskette into drive A.
- 4) At the DOS prompt, type: **a:\phlash\*\***
- 5) Where xx represents the appropriate BIOS language as follows:
  - SP Spanish
  - GR German
  - FR French
  - IT Italian
  - EN English
- 6) For example, to switch to a Spanish BIOS enter: **a:\phlashSP**  
A screen appears on the monitor warning you that they are about to erase the BIOS.
- 7) Press **[Enter]** if you want to continue. If not, press **[Esc]** to cancel.  
Once you press **[Enter]**, PHLASH.EXE automatically updates the computer's BIOS.  
After the flashing process completes, the computer automatically reboots itself so changes immediately take effect.
- 8) Remove the multilingual BIOS diskette.

## Configure an EPP Parallel Port

EPP3NS.EXE is a device driver for configuring the parallel port as an enhanced parallel port (EPP). Before loading this device driver, check the documentation for the device you want to connect to the parallel port and make sure it supports EPP mode. If it does not, you do not need to load this device driver. If the device does support EPP mode, you should:

- 1) Either copy EPP3NS.EXE to the hard disk drive or locate it on the hard disk drive's factory installed software.  
Note the path where the driver is located.
- 2) Edit the CONFIG.SYS file to enter the path for EPP3NS.EXE.  
Refer to the DOS documentation for information on editing the CONFIG.SYS file. For example a line in the CONFIG.SYS might be: **device=c:\epp3ns.exe**
- 3) Save the new version of the CONFIG.SYS file.
- 4) Press **[Ctrl] + [Alt] + [Del]** to reboot the computer.
- 5) Before POST completes, press **[F2]** to enter Setup.
- 6) Choose the Advanced Menu in Setup and select Parallel Port Mode.
- 7) Choose EPP mode.
- 8) Select Save Changes and Exit to save the new setting.  
The computer will then automatically reboot.  
The parallel port is now configured as an EPP port.

## Video Utilities and Drivers

### Configuring Video

The CELEBRIS GL and GL<sup>ST</sup> computers come with software to configure the computer for the monitor type, and to change the resolution settings that come factory installed on the hard disk drive. Before changing any resolutions and resetting the monitor type, please check the monitor documentation. Make selections based on what the monitor can support.

### Configuring Monitor, Windows for Workgroups

The computer has various video applications. To configure the monitor to the resolution and color (pixel) depth you want for the Windows applications, do the following:

- 1) From the **MGA Millennium PowerDesk** group in the Windows Program Manager, double click on the appropriate application icon, such as **MGA Millennium Control Panel**.
- 2) Select the resolution and color depth you want then click on **OK**. The computer will then prompt you to restart Windows so you can use the new configuration. Every application has a good help program that you can use as desired when using the application.

## Configuring Monitor, Windows 95

The Windows 95 computer has an application to change the color palette, font size, and the display resolution. To access this application in Windows 95, do the following:

- 1) Click on the desktop with the right (third) mouse button or use the Applications key on the keyboard.
- 2) Select **Properties** from the popup menu.
- 3) Choose the desired settings.
- 4) Click on **OK** or **Apply**.
- 5) Depending on the settings that you made, you may be prompted to restart windows for the changes to take effect.

Use the help feature with each application as desired.

## Configuring Audio

In most cases, the CELEBRIS GL and GLST came with audio already configured. If not, there are audio applications included inside Windows for Workgroups and Windows 95. Use these applications to set up and configure the computer's audio. Refer to any supplied audio drivers are located in the PC Audio directory.

## Setting up Audio in an Application

If using a DOS-based application with sound, set up the application for Sound. Many games fall into this category of applications.

Prior to setting up the application, check that Audio parameters are implemented appropriately in the BIOS Setup.

---

**NOTE** Audio is already installed in the computer. As a result, the Audio DMA and Audio IRQ options in the BIOS Setup are factory set to Enabled.

---

# BIOS Setup Utility

## Running the BIOS Setup Utility

The BIOS Setup utility enables you to select and permanently store information about the computer's hardware and software in the battery-backed memory of the CMOS RAM. This information takes effect each time the computer boots and can be changed each time you run setup.

Use the BIOS Setup utility if you experience problems with the hard disk or need to reconfigure the computer. In addition, the BIOS Setup utility might need to be used to modify the configuration after you add or remove hardware, or change computer settings.

To run the BIOS Setup utility:

- 1) Turn on the computer and allow POST to complete.
- 2) Make a note of any configuration errors listed, and then press **[F2]** to display the main menu.
- 3) Follow the instructions on the monitor screen and any on-line help pop-up screens to configure your computer.

## Helpful Hints

- ◆ Several keyboard function keys and numeric keypad keys are assigned to help you select menus and options, change option values, and display help information. These keys are displayed at the bottom of the main menu and from the General Help pop-up screen.
- ◆ Item-specific help is available anytime during the setup process and appears at the right of the setup screen each time an option is highlighted. This on-line help provides information about a highlighted option.
- ◆ Select "*Save Changes & Exit*" to save all Setup values.
- ◆ Select "*Discard Changes & Exit*" to exit Setup without recording any changes.
- ◆ Select "*Get Default Values*" to set all Setup options to their default values.
- ◆ Select "*Load Previous Changes*" to restore all CMOS values from the last session.
- ◆ Select "*Save Changes*" to save all selections without exiting Setup.
- ◆ Press **[Esc]** to exit the Setup utility.

## BIOS Setup Utility Options

The following Help topics list the BIOS options that can be updated or modified by using the BIOS Setup utility, according to the various sub-menus under which they appear.

- ◆ **Main Menu Options**, sets basic computer configuration options (time, date, video, etc.).
- ◆ **Advanced Options**, sets advanced features to increase computer performance (COM ports, LPT port, etc.).
- ◆ **Security Options**, sets passwords and backup data reminders.
- ◆ **Power Options**, sets power saving options to increase the life of the computer.
- ◆ **Exit**, provides options for saving changes and leaving BIOS Setup (refer to "*Navigating in the BIOS Setup Utility*" for additional information).

## System Options

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>System time</b>	Current time	Displays the current time.
<b>System date</b>	Current date	Displays the current date.
<b>Language</b>	English Español Français Deutsch Italiano	This setting cannot be changed in Setup. Refer to the note for additional information.
<b>Diskette drive A Diskette drive B</b>	1.44 MB, 3½ 2.88 MB, 3½ Not Installed 1.2 MB, 5¼ 720 KB, 3½	Sets the size and density of diskette drives.
<b>Video system</b>	EGA / VGA CGA 80x25 Monochrome	Sets the video controller type.
<b>System memory</b>	Not user selectable	Displays the amount of base (conventional) memory each time the computer boots.
<b>Extended memory</b>	Not user selectable	Displays the amount of extended memory each time the computer boots.

## Hard Disk Options

(IDE Adapter 0/1 Master/Slave)

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>Autotype fixed disk</b>		Press [Enter] to detect and fill in the installed hard disk drive parameters in the remaining fields.
<b>Type</b>	None to 39 User	Selecting 1 to 39 automatically fills in the remaining fields in this menu. Selecting User allows the remaining fields to be filled in manually, using the installed hard disk drive's parameters.
<b>Cylinders</b>	0 to 4095	Displays the number of cylinders.
<b>Heads</b>	1 to 64	Displays the number of heads.
<b>Sectors/track</b>	0 to 63	Displays the number of sectors/track.
<b>Write precomp</b>	0 to 4095 None	Displays the number of cylinders that have their write timing changed.
<b>Multi-sector transfers</b>	2 sectors 4 sectors 8 sectors 16 sectors Auto Disabled	Determines the number of sectors per block for multiple sector transfers. Auto refers to the size the disk returns when queried.
<b>LBA control mode</b>	Disabled Enabled	Enables or disables the LBA hard disk drive addressing option. This option allows you to select Disabled for IDE hard disk drives up to 528 MB. When using IDE drives greater than 528 MB and MS-DOS or MS-Windows as the operating system, select Enabled. Select Disabled for all other operating systems.
<b>32 Bit I/O</b>	Enabled Disabled	Enables or disables 32-Bit data transfer with the IDE HDD. If enabled, Read Ahead Mode is enabled and cannot be changed by the user. This is recommended when using the PCI IDE connector.
<b>Transfer Mode</b>	Standard Fast PIO1 Fast PIO2 Fast PIO3	Selects the method to transfer data to and from the HDD. If you select the user autotype for the HDD, Setup automatically selects the optimum transfer mode is selected.
<b>Read Ahead Mode</b>	Enabled Disabled	When enabled, the read ahead buffer in the local bus IDE controller increases HDD performance. Enabled is selected automatically if 32-Bit I/O is enabled.

## Memory and Cache

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Internal cache</b>	Enabled Disabled	Enables or disables the computer's internal cache.
<b>External cache</b>	Enabled Disable	The computer's external cache operates in write-back mode if you select Enabled. For optimal computer performance, you should keep this setting at Enabled.
<b>System BIOS shadow</b>	Enabled (Not user selectable; permanently set)	The main logic board reserves an area of DRAM for a copy of system BIOS ROM. This DRAM called "shadow memory" is write-protected and has the same addresses as the system BIOS ROM locations. When system BIOS ROM is shadowed, the ROM information is copied into an appropriate area in DRAM. This increases the computer's performance because the system BIOS instructions are in fast DRAM instead of ROM.
<b>Cache system BIOS</b>	Enabled Disabled	This option enables the system BIOS to be cached in the internal cache and external cache (if installed). This increases computer performance because BIOS instructions can be executed in cache instead of RAM.
<b>Video BIOS shadow</b>	Enabled Disabled	The main logic board reserves an area of DRAM for a copy of video BIOS ROM. This DRAM called "shadow memory" is write-protected and has the same addresses as the video BIOS ROM locations. When video BIOS ROM is shadowed, the ROM information is copied into an appropriate area in DRAM. This increases the computer's performance because the video BIOS instructions are in fast DRAM instead of ROM.
<b>Cache video BIOS</b>	Enabled Disabled	This option enables the video BIOS to be cached in the internal cache and external cache (if installed). This increases computer performance because video BIOS instructions can be executed in cache instead of RAM.
<b>Shadow 16K at: C8000h CC000h D0000h D4000h D8000h DC000h</b>	Enabled Disabled	Enables or disables shadowing of individual segments of ROM to increase computer performance.
<b>AT bus space</b>	Disabled  F80000h, 0.5 MB  F00000h, 1 MB	Memory hole not available; upper memory is contiguous.  Sets the memory hole at address F80000 with 0.5 MB memory available.  Sets the memory hole at address F00000 with 1 MB memory available.
<b>Extended memory report</b>	Compatibility Non-compatibility	Selects the BIOS report mechanism for memory amount. Select Compatibility when using a conventional operating system. Select Non-compatibility for extended memory above 64 MB under Windows NT v3.1.

## Boot Options

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>Boot sequence</b>	A: only A: then C: C: then A: C: only	Each time the computer boots, it will load the operating system from the sequence selected.
<b>SETUP prompt</b>	Enabled Disabled	Enables or disables the <F2> Setup prompt each time the computer boots. Selecting Disable only disables the prompt indicating when to press <F2> to enter Setup. You can still enter Setup by pressing <F2> before POST completes.
<b>POST errors</b>	Enabled Disabled	Enabling this option causes the computer to pause and display a setup entry or resume the boot prompt if an error occurs at boot. Disabling this option causes the computer to always attempt to boot regardless of a setup entry or error.
<b>Floppy check</b>	Enabled Disabled	Enabling this option causes the computer to verify the diskette type each time the computer boots. Disabling this option speeds up the boot process.
<b>Summary screen</b>	Enabled Disabled	Enabling this option causes the computer to display configuration parameters (in the form of a summary screen) during boot.

## Keyboard Features

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>Numlock</b>	Auto On Off	Turns Numlock on or off each time the computer boots.
<b>Key click</b>	Disabled Enabled	Enables or disables the audible key click feature.
<b>Keyboard auto-repeat rate</b>	2/sec 6/sec 10/sec 13.3/sec 18.5/sec 21.8/sec 26.7/sec 30/sec	Sets the number of times a second to repeat a keystroke while the key is held down.
<b>Keyboard auto-repeat delay</b>	1/4 sec 1/2 sec 3/4 sec 1 sec	Sets the delay time after a key is held down before it begins to repeat a keystroke.
<b>Serial port 2</b>	Auto Disabled 3F8, IRQ 4 2F8, IRQ 3 3E8, IRQ4 2E8, IRQ3	Enables or disables onboard serial port 2 at the specified address. Select Auto unless interrupts IRQ4 and/or IRQ3 are allocated as a computer resource. Two devices cannot share the same IRQ. Choosing Disable makes serial port 2 unusable. If you select Auto, Setup configures COM2 to address = 2F8h and IRQ = 3.

**Keyboard Features** (continued)

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Diskette controller</b>	Enabled Disabled	Enables or disables the onboard diskette controller.
<b>Exchange diskette drives</b>	Disabled Enabled	Logically exchanges physical diskette drive designations.
<b>Diskette write protection</b>	Disabled Enabled	Enables or disables the selected diskette drive's write protect option.
<b>IDE adapter 0 IDE adapter 1</b>	Enabled Disabled	Enables or disables the onboard IDE controller.

**Advanced Options**

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Plug &amp; Play O/S</b>	Yes No	Select Yes if using a Plug & Play operating system such as Windows 95. Otherwise, select No.
<b>Reset Configuration</b>	Yes No	Select Yes to clear the system configuration data if you suspect it is corrupted, which sometimes occurs after a power outage. This option also clears the Plug & Play databases. After you input correct settings (or accept the default settings), the computer switches this setting back to No. If you do not need to clear system configuration data, leave the setting at No.
<b>Large disk access mode</b>	DOS Other	Select DOS if you have MS-DOS installed. Select Other if you have another operating system installed. A large disk drive constitutes one that has more than 1024 cylinders, 16 heads, or 63 tracks per sector.

**Integrated Peripherals**

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Mouse port</b>	Disabled Enabled	Enables or disables the mouse port.
<b>Parallel port</b>	Auto Disabled 3BC, IRQ 7 378, IRQ 7 278, IRQ 5	Enables or disables the onboard port at the specified address.
<b>Parallel port mode</b>	Compatible mode  Bi-directional mode	Standard printer connection.  PS/2 compatible mode and able to receive data.

**Integrated Peripherals** (continued)

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Parallel port mode</b>	ECP mode	Extended capabilities port mode.
	EPP 1.7 EPP 1.9	Enhanced parallel port mode. Selection based on what EPP version the printer supports. Only choose a mode that the parallel port device (such as a printer) supports. Check the parallel port device documentation for this information. If this information cannot be located, use the default setting.
<b>Serial port 1</b>	Auto	Enables or disables onboard serial port 1 at the specified address.
	Disabled 3F8, IRQ 4 2F8, IRQ 3 3E8, IRQ4 2E8, IRQ3	Select Auto unless interrupts IRQ4 and/or IRQ3 are allocated as a computer resource. Two devices cannot share the same IRQ. Choosing Disable makes serial port 1 unusable. If you select Auto, Setup configures COM1 to address = 3F8h and IRQ = 4.

**Advanced Chipset Control**

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>PCI Slot 1 Latency Timer</b>	Default (40h)	Select Default or a value from 08h to F8h to set the PCI device's latency timer. Default uses the PCI device's power on setting
	08h - F8h	
<b>PCI Slot 2 Latency Timer</b>	Default (40h)	Select Default or a value from 08h to F8h to set the PCI device's latency timer. Default uses the PCI device's power on setting
	08h - F8h	
<b>VGA palette snoop</b>	Enabled	This option controls how VGA devices handle accesses to their palette areas. Enabling this option causes special palette behavior (a device must not respond to normal accesses). Disabling this option causes a device to treat palette accesses like any other device access. Enable VGA Palette Snoop when a second video adapter is connected to the feature connector of the installed VGA adapter for multi-media devices.
	Disabled	
	Default	
<b>Monitor</b>	Auto	Sets the monitor type. Auto automatically detects the monitor type. If Auto fails to correctly detect the monitor type, select Color or Monochrome as appropriate.
	Color Monochrome	
<b>VGA Feature connector</b>	Enabled	Use with VGA add-in cards to inform card not to claim VGA palette writes.
	Disabled	Use to inform VGA add-in cards to claim VGA palette writes.
<b>Onboard VGA IRQ</b>	Enabled	Select Enabled if the application requires VGA IRQ
	Disabled	

## Security Options

**NOTE** Entering Setup with a supervisor password provides full access to all BIOS Setup utility menus.

<i>Menu Fields</i>	<i>Settings</i>	<i>Comments</i>
<b>Supervisor password is</b>	Not user selectable (Disabled)	Indicates whether or not the supervisor's password is enabled or disabled.
<b>User password is</b>	Not user selectable (Disabled)	Indicates whether or not the user's password is enabled or disabled.
<b>Set supervisor password</b>	Press [Enter]	Allows a supervisor password to be set. The supervisor password must be set if a user password is to be used. When the supervisor later enters his or her password, all user selectable features are accessible.
<b>Set user password</b>	Press [Enter]	Allows a user password to be set. This password can be set only if a supervisor password is entered. When the user has entered his or her name but the supervisor is not logged in, only the following information is accessible: Supervisor password is Enabled. User password is Enabled. Set user password [press enter] to enter a user password. Password on boot Enabled/Disabled (which ever is in effect). This option is not allowed to change. Custom sign on banner Enabled/Disabled (which ever is in effect). This option is not allowed to change.
<b>Password on boot</b>	Enabled Disabled	Enables or disables the enter password on boot option.
<b>Custom sign on banner is</b>	Not user selectable (Disabled)	Indicates whether the custom sign on banner is enabled or disabled.
<b>Custom sign on banner</b>	Press [Enter]	Press [Enter] to enter a custom sign on banner that displays during POST. For example, the user might enter "Welcome to John's machine." The maximum number of characters is 50.
<b>Diskette access</b>	Supervisor User	Controls who has access to diskette drives. If Supervisor is selected, access to the diskette drive is limited to the supervisor, who must enter his or her password. If User is selected, the diskette drive can be accessed by entering either the supervisor or the user password. Whatever setting is chosen, it only becomes functional if both a Supervisor Password and a User Password have been set (if you choose User for the setting).
<b>Fixed disk boot sector</b>	Normal Write protect	Write protects the boot sector on the hard disk drive.
<b>Network server</b>	Enabled Disabled	This option keeps the computer from being accessed during network operation.

**Security Options** (continued)

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>System backup reminder</b>	Disabled Daily Weekly Monthly	Enables or disables the system backup reminder message.
<b>Virus check reminder</b>	Disabled Daily Weekly Monthly	Enables or disables the virus check reminder message.
<b>Keyboard quick lock</b>	Enabled Disabled	Select Enabled to "quick lock" the keyboard. Select Disabled to disable this feature.

## Power Options

<b>Menu Fields</b>	<b>Settings</b>	<b>Comments</b>
<b>Power management</b>	Enabled Disabled	Enable this field to use any of the power management options. If this field is enabled and the other fields are disabled, only minimal power reduction is affected.
<b>System standby timer</b>	Disabled 1 min. 5 min. 10 min. 20 min. 30 min.	After a set period of computer inactivity, the BIOS places the computer in a standby state (medium power savings), that is, the monitor and CPU are set to power management. Any mouse or keyboard activity quickly returns the computer to operation. Alternately, you can choose to disable this option and thereby not use this feature. Power management must be enabled to use this option.
<b>System suspend timer</b>	Disabled 1 hour 1.5 hour 2 hour 3 hour 6 hour 12 hour	After a set period of computer inactivity, the BIOS places the computer in a suspended state (maximum power savings), that is, the monitor and fan are shut off and the CPU and hard disk are powered down. Any mouse or keyboard activity quickly returns the computer to operation. If you set a timer for the field, you should also set Power Management to Enabled. Alternately, you can choose to disable this option and thereby not use this feature. Power management must be enabled to use this option.
<b>Quick suspend</b>	Disabled [Ctrl-Alt-Esc] [Ctrl-Alt-Scroll Lock] [Ctrl-Alt-F1 – F10] [Ctrl-Alt-1 – 0]	Enabling this option allows you to put the computer in immediate suspend (maximum power savings) by pressing the key sequence selected in Setup. You do not have to wait for the System Suspend timer to put the computer in a maximum power saving state.
<b>Suspend lock system</b>	Yes No	When enabled, system suspend locks both mouse and keyboard until the user password is entered. If there is only a Supervisor password set, enter that password. See “Set supervisor password” and “Set user password” in the Security Options table. Power management must be enabled to use this option.

# Chapter 3

# Service Procedures

## Safety Requirements

**WARNING**

**Static electricity collects on non-conductors such as paper, cloth, or plastic. A static discharge can be damaging even though you often cannot see or feel it.**

The following safety precautions must be observed to insure product and personal safety and prevent damage to circuit boards and/or components:

- ◆ Always wear an ESD wrist strap when handling ESD sensitive material and be sure it is properly connected.
- ◆ Keep circuit boards and components away from non-conductors.
- ◆ Keep clothing away from circuit boards and components.
- ◆ Keep circuit boards in anti-static bags.
- ◆ Be cautious when AC power is exposed when working on an assembly.
- ◆ Always use an ISOLATION TRANSFORMER when diagnosing any terminals, monitors or power supplies when AC power is applied.
- ◆ Be cautious of very high voltage potentials when working with monitors.

There should be an approved insulating mat (for technician safety) in front of any workbench where monitors, terminals or power modules are being serviced when power is applied.

**NOTE** Do NOT wear ESD straps when working on terminals, monitors or power supplies when AC power is applied. This is to avoid the hazard of electrical shock.

## Recommended Tools

The following tools are needed for servicing Digital PC systems. Note that test equipment must be calibrated.

- ◆ Multimeter (4 1/2 digit)
- ◆ A philips screwdriver
- ◆ An antistatic wrist strap

## Other Materials Needed

Cleaning agent should be an all purpose cleaner that is used in-house.

## Special Tools Required

None.

## Remedial Diagnostic Test Software

- ◆ **QAPLUS/fe**, PC Advanced Diagnostic Software, latest version.  
Supplier information:  
**Diagsoft, Inc.**  
**5615 Scotts Valley Drive, Suite 140**  
**Scotts Valley, California 95066, U.S.A.**  
**Voice : 1-408-438-8247**  
**Fax : 1-408-438-7113**  
**Internet : <http://www.diagsoft.com>** (Diagsoft, Inc. homepage)

## Recommended Virus Detection and Cleanup Software

- ◆ **F-PROT**, Virus Detection and Cleanup Software, latest version.  
Supplier information:  
North America, South America, Australia and New Zealand:  
**Command Software Systems Inc.**  
**Tel: +1-407-575 3200**  
**Fax: +1-407-575 3026**  
  
Most of Europe, Africa, Middle and Far East:  
**Data Fellows Ltd**  
**Paivantaite 8**  
**FIN-02210 ESPOO**  
**FINLAND**  
**tel: +358-0-478 444**  
**fax: +358-0-478 44 599**  
**e-mail: [f-prot@datafellows.fi](mailto:f-prot@datafellows.fi)**  
**Internet : <http://www.datafellows.fi>** (Data Fellows Ltd. homepage)

## ECO/FCO Information

### BIOS Version Information

Refer to the Digital DECpc Bulletin Board Support (telephone number: **xx33 92960312**) for the latest information on BIOS upgrades.

## Unlocking and Removing the CELEBRIS GL Cover

**WARNING**

You might injure yourself or damage the computer if you attempt to remove the cover before unplugging ac and monitor power cords.

The computer's cover must be removed prior to installing any hardware option.

To remove the cover:

- 1) Unlock cover.
- 2) Lift both side locks out, then turn towards front of computer to release cover from chassis.
- 3) Carefully slide cover toward front of chassis until it clears lip of front bezel.
- 4) Carefully lift cover from chassis.

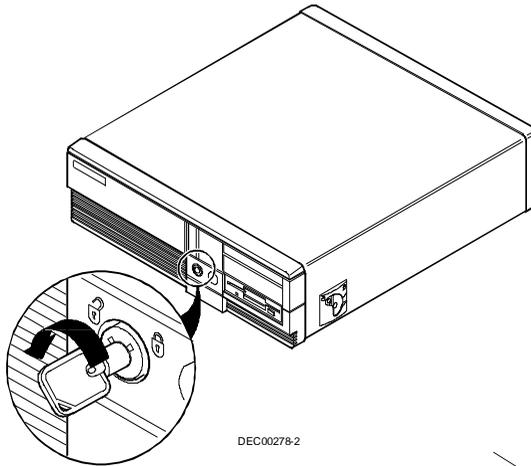
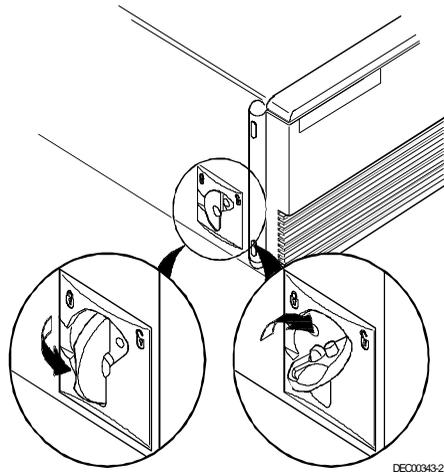
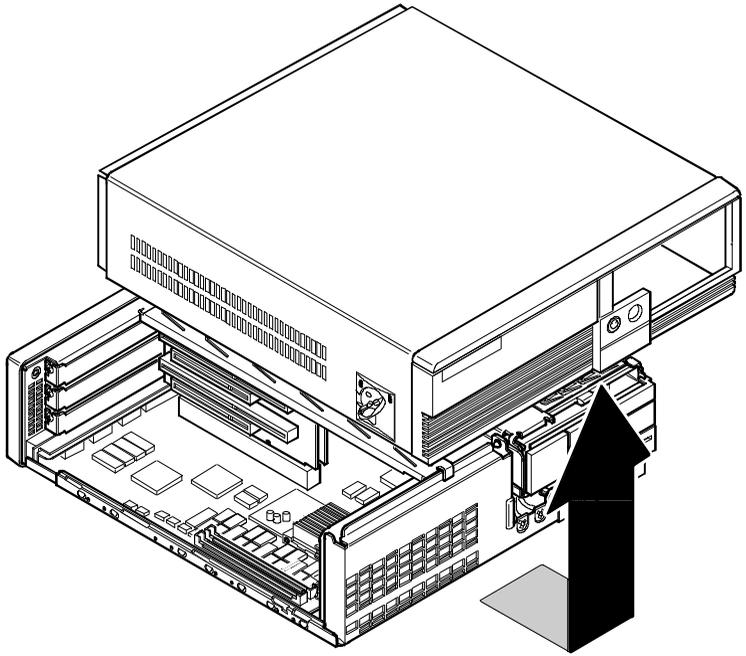


Figure 3 - 1 Unlocking the Cover

Figure 3 - 2 Release Cover





DEC00505-2

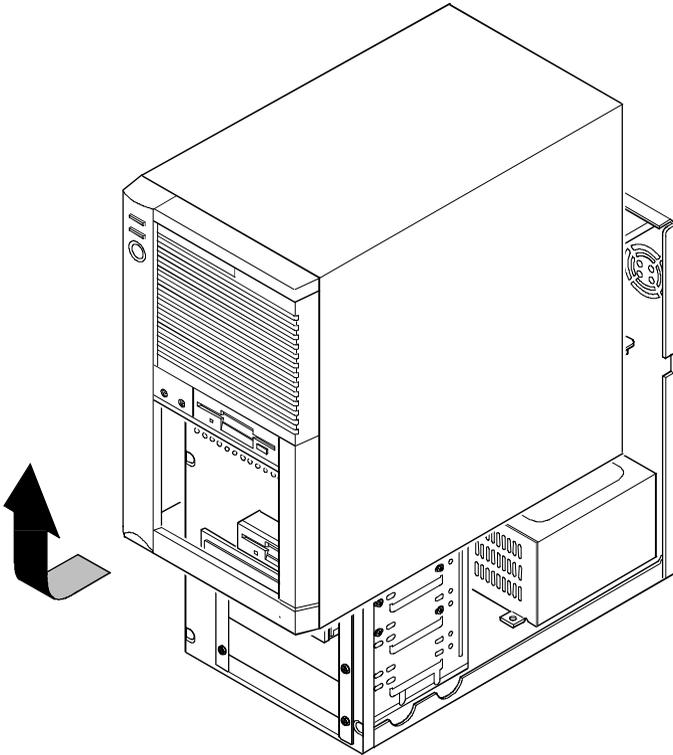
Figure 3 - 3 Removing the Cover

## Unlocking and Removing the CELEBRIS GL<sup>ST</sup> Cover

The computer's cover must be removed prior to installing any hardware option.

To remove the cover:

- 1) Unlock cover.
- 2) Loosen the three rear panel thumbscrews.
- 3) Carefully slide the cover forward until it clears rear panel.
- 4) Carefully lift cover from chassis.



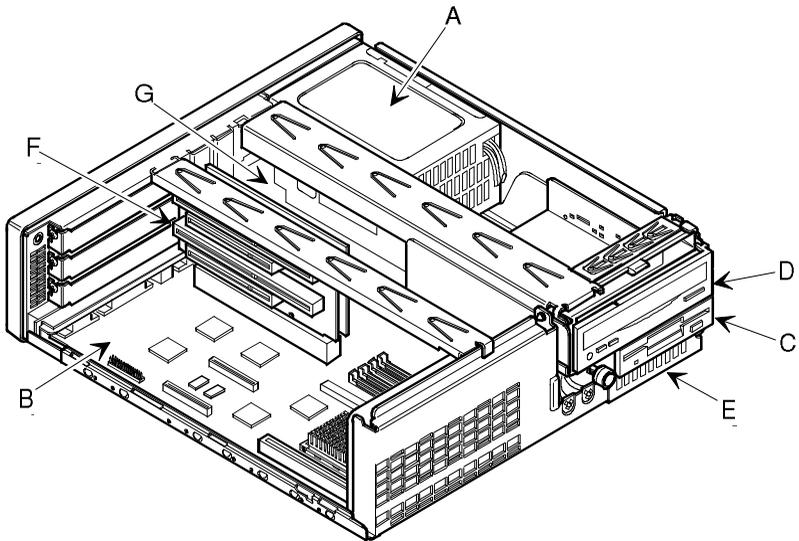
DEC00618-2

Figure 3 - 4 Removing the Cover, CELEBRIS GL<sup>ST</sup>

# Computer Components

## CELEBRIS GL Computer Components

<b>Legend</b>	<b>Component</b>
<b>A</b>	Power supply
<b>B</b>	Main logic board
<b>C</b>	3½-inch diskette drive
<b>D</b>	Front access drive bay w/optional CD-ROM installed
<b>E</b>	Front internal drive bay
<b>F</b>	Riser card (Supports up to three expansion boards; two PCI and one ISA or two ISA and one PCI)
<b>G</b>	Rear internal drive bay (under power supply)

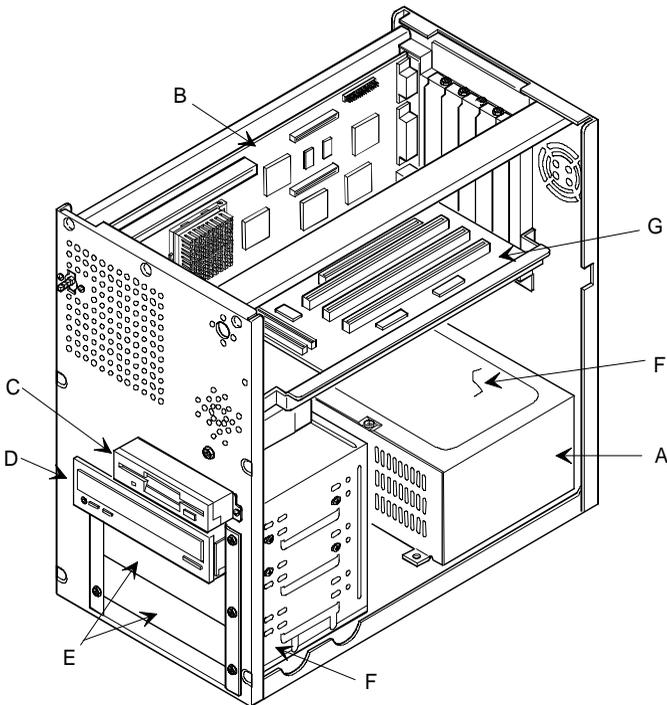


DEC00621-4

Figure 3 - 5 CELEBRIS GL Computer Components

### CELEBRIS GL<sup>ST</sup> Computer Components

<i>Legend</i>	<i>Component</i>
<b>A</b>	Power supply
<b>B</b>	Main logic board
<b>C</b>	Front access 3½-inch diskette drive
<b>D</b>	Front access 5¼-inch drive bay w/optional CD-ROM
<b>E</b>	Empty front access 5¼-inch drive bays
<b>F</b>	Internal drive bays
<b>G</b>	Riser card (supports up to five expansion boards; three ISA and two PCI or four ISA and one PCI). Includes SCSI controller with two connectors, for internal and external SCSI devices.



DEC00617-2

Figure 3 - 6 CELEBRIS GL<sup>ST</sup> Computer Components

## Expansion Slots

The computer automatically assigns the necessary resources to any installed Plug and Play-compatible expansion board so it operates at maximum performance. If you plan on installing non-Plug and Play expansion boards, you might need to manually set jumpers on the board based on the computer resources already allocated.

### CELEBRIS GL Models

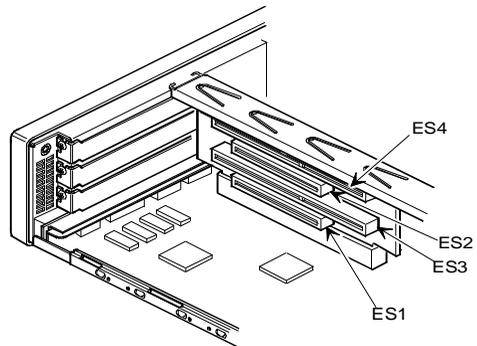
The CELEBRIS GL riser card contains four slots for installing:

- ◆ Two ISA expansion boards and one PCI expansion board or
- ◆ One ISA expansion board and two PCI expansion boards (refer to the table).

<i>Expansion Slot</i>	<i>Slot Type</i>	<i>Description</i>
<b>ES4</b>	ISA	Supports full-length industry-standard 16-bit ISA expansion boards. Uses the top expansion slot at the rear panel.
<b>ES3</b>	ISA	Supports full-length industry-standard 16-bit ISA expansion boards. Uses the middle expansion slot at the rear panel. Designated as a shared slot with PCI slot ES2 <sup>(1)</sup> .
<b>ES2</b>	PCI	Supports full-length 32-bit PCI local bus expansion boards. Uses the middle expansion slot at the rear panel. Designated as a shared slot with ISA slot ES3 <sup>(1)</sup>
<b>ES1</b>	PCI	Supports half-length 32-bit PCI local bus expansion boards. Uses the bottom expansion slot at the rear panel.

<sup>(1)</sup> Only one expansion board can reside in slot ES3 and ES2 at any one time. These slots have to share the middle expansion slot opening at the rear panel, thus, a maximum of three expansion boards can be supported at any one time.

\* Expansion slot numbers are designated J(n) as silk-screened on the riser card; not to be confused as jumper numbers.



**Figure 3 - 7 CELEBRIS GL Expansion Board Slots**

DEC00509-2

### CELEBRIS GL<sup>ST</sup> Models

The CELEBRIS GL Short Tower computer's riser card contains six slots for installing:

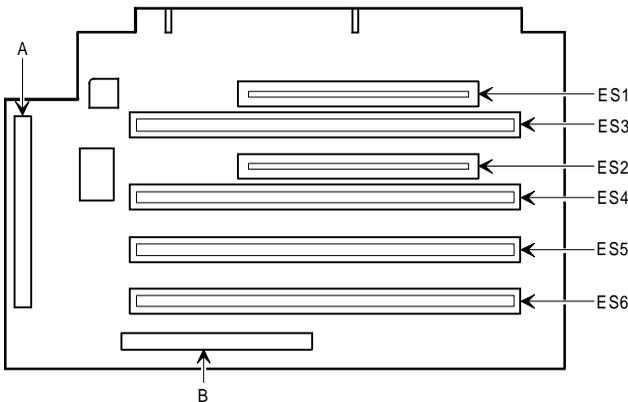
- ◆ Four ISA expansion boards and one PCI expansion board or
- ◆ Three ISA expansion boards and two PCI expansion boards (refer to the table).

The riser card also contains an internal SCSI connector (A) and an external SCSI connector (B) if you choose to configure your computer using SCSI devices.

<i>Expansion Slot</i>	<i>Slot Type</i>	<i>Description</i>
<b>ES4-ES6</b>	ISA	Supports full-length industry-standard 16-bit ISA expansion boards. Uses the right three expansion slots at the rear panel.
<b>ES3</b>	ISA	Supports full-length industry-standard 16-bit ISA expansion boards. Uses the fourth (second from left) expansion slot at the rear panel. Designated as a shared slot with PCI slot ES2. <sup>(1)</sup>
<b>ES2</b>	PCI	Supports full-length 32-bit PCI local bus expansion boards. Uses the fourth (second from left) expansion slot at the rear panel. Designated as a shared slot with ISA slot ES3. <sup>(1)</sup>
<b>ES1</b>	PCI	Supports half-length 32-bit PCI local bus expansion boards. Uses the leftmost expansion slot at the rear panel.

<sup>(1)</sup> Only one expansion board can reside in slot ES2 and ES3 at any one time. These slots have to share the fourth expansion slot opening at the rear panel, thus, a maximum of five expansion boards can be supported at any one time.

\* Expansion slot numbers are designated J(n) as silk-screened on the riser card; not to be confused as jumper numbers.



**Figure 3 - 8 CELEBRIS GL<sup>ST</sup> Expansion Board Slots**

DEC00613-2

## Main Logic Board Jumpers

Jumper pins allow you to set specific computer parameters. They are set by changing the pin location of jumper blocks. Note that the square pin of each jumper block is pin 1. A jumper block is a small plastic-encased conductor (shorting plug) that slips over the pins. To change a jumper setting, remove the jumper from its current location with the fingers. Place the jumper over the two pins designated for the desired setting. Press the jumper evenly onto the pins. Be careful not to bend the pins.



### CAUTION

**Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system box chassis. A static discharge from your fingers can result in permanent damage to electronic components.**

## Main Logic Board Jumper Settings

<i>Feature</i>	<i>Description</i>	<i>Setting</i>
<b>CPU Clock</b>	50 MHz <sup>(1)</sup>	J36, open <sup>(1)</sup> J40, open <sup>(1)</sup>
	60 MHz	J36, jumpered J40, open
	66 MHz	J36, jumpered J40, jumpered
<b>CPU core/bus</b>	3/2 (90 and 100 MHz)	J48, open J41, open
	2/1 (120 MHz, 133 MHz)	J48, open J41, jumpered
	3/1	J48, jumpered J41, open
	5/2	J48, jumpered J41, jumpered
<b>Recovery mode</b>	Recovery mode	J22, jumpered
	Normal <sup>(1)</sup>	J22, open <sup>(1)</sup>
<b>Password clear</b>	Password clear (MFG test)	J20, jumpered
	Normal mode <sup>(1)</sup>	J20, open <sup>(1)</sup>
<b>Factory setting</b>	Disable boot block program <sup>(1)</sup>	J6, pins 1 and 2 jumpered <sup>(1)</sup>
	Enable boot block program	J6, pins 2 and 3 jumpered <sup>(2)</sup>

<sup>(1)</sup> Factory setting.

<sup>(2)</sup> Enable pins 2 and 3 of J6 when doing a BIOS boot block upgrade.

### CELEBRIS GL & GL<sup>ST</sup> Main Logic Board Jumper Locations

The illustration shows the locations of the main logic board jumper pins.

Note that the square pin of each jumper block is pin 1.

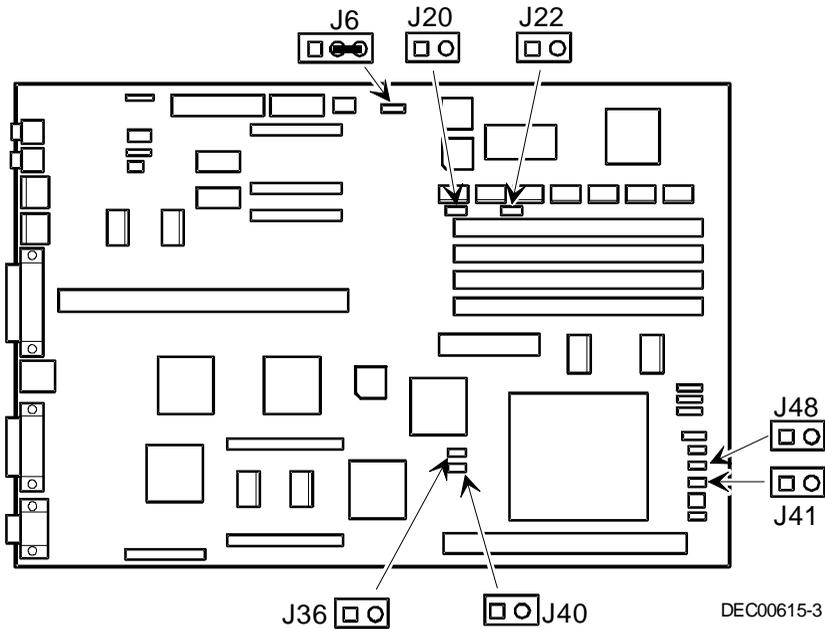


Figure 3 - 9 CELEBRIS GL & GL<sup>ST</sup> Main Logic Board Jumper Locations

## Computer Memory Configurations

Adding more memory allows the computer to run larger, more complicated software and run it more quickly.

Depending on the model, the computer comes with either 8 MB or 16 MB of onboard memory. For those with 8 MB computers, memory is installed as two 4 MB SIMMs in bank 1 (socket 0 and 1). For those with 16 MB computers, memory is installed as two 8 MB SIMMs in bank 1 (socket 0 and 1). You can increase this amount up to a maximum of 128 MB using the four SIMM sockets on the main logic board.

Note that Extended Data Out (EDO) memory is available in 8 MB and 16 MB SIMMs and Error Correction Code (ECC) memory is available in 16 MB SIMMs only. EDO memory is faster than standard non-parity memory while ECC memory is for mission critical reliability.

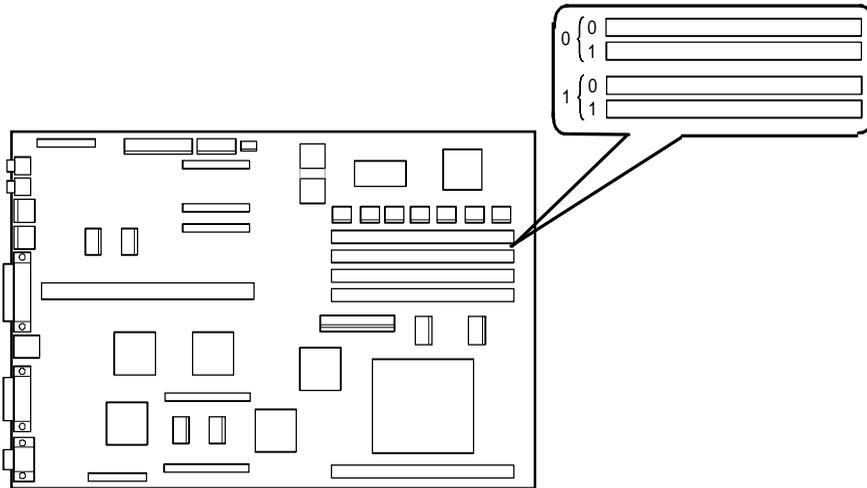
When adding SIMMs make sure you:

- ◆ Install 32-bit SIMMs having an access time of 70 ns or less. Supported SIMM sizes: 4 MB, 8 MB, 16 MB or 32 MB (60 ns for EDO DRAM).
- ◆ For improved performance, CELEBRIS GL and GL<sup>ST</sup> computers are designed with paged mode memory. This feature requires that you populate both sockets in each bank. You must ensure that the SIMM in each socket is the same type, size, and speed. Therefore, a 4 MB SIMM in SIMM socket 0 requires a 4 MB SIMM in SIMM socket 1.
- ◆ If you use EDO memory in only one bank, use it in Bank 0.

### Memory Configurations

<b>Socket 0 (0/0)</b>	<b>Socket 1 (0/1)</b>	<b>Socket 2 (1/0)</b>	<b>Socket 3 (1/1)</b>	<b>Total</b>
4 MB	4 MB	4 MB	4 MB	<b>16 MB</b>
4 MB	4 MB			<b>8 MB</b>
4 MB	4 MB	8 MB	8 MB	<b>24 MB</b>
4 MB	4 MB	16 MB	16 MB	<b>40 MB</b>
4 MB	4 MB	32 MB	32 MB	<b>72 MB</b>
8 MB	8 MB			<b>16 MB</b>
8 MB	8 MB	8 MB	8 MB	<b>32 MB</b>
8 MB	8 MB	16 MB	16 MB	<b>48 MB</b>
8 MB	8 MB	32 MB	32 MB	<b>80 MB</b>
16 MB	16 MB			<b>32 MB</b>
16 MB	16 MB	16 MB	16 MB	<b>64 MB</b>
16 MB	16 MB	32 MB	32 MB	<b>96 MB</b>
32 MB	32 MB			<b>64 MB</b>
32 MB	32 MB	32 MB	32 MB	<b>128 MB</b>
8 MB EDO	8 MB EDO			<b>16 MB EDO</b>
8 MB EDO	8 MB EDO	8 MB EDO	8 MB EDO	<b>32 MB EDO</b>
8 MB EDO	8 MB EDO	16 MB EDO	16 MB EDO	<b>48 MB EDO</b>
16 MB EDO	16 MB EDO	16 MB EDO	16 MB EDO	<b>64 MB EDO</b>
16 MB ECC	16 MB ECC			<b>32 MB ECC</b>
16 MB ECC	16 MB ECC	16 MB ECC	16 MB ECC	<b>64 MB ECC</b>

### Main Logic Board SIMM Socket Locations



DEC00565-3

Figure 3 - 10 SIMM Socket Locations

## Part Removal and Replacement Procedures

### Opening the Device Bay and Power Supply Subassembly

Use the following procedure to gain access to the inside of the computer:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Slide *front locking mechanism* to right and release device bay and power supply subassembly.
- 5) Lift up on subassembly and lock it in place.

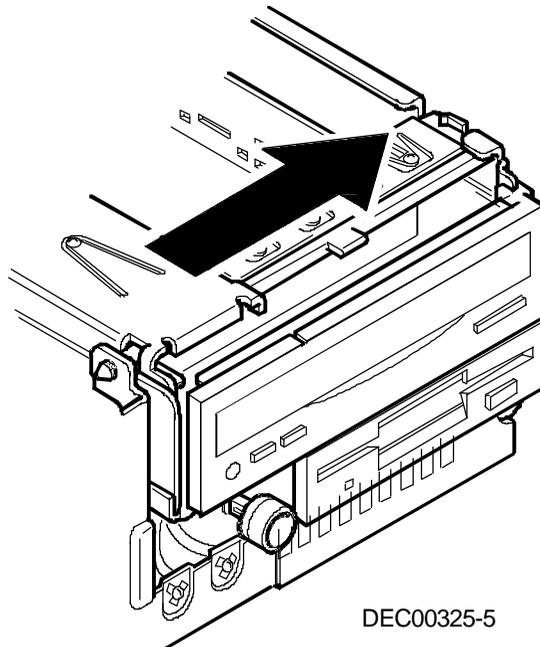
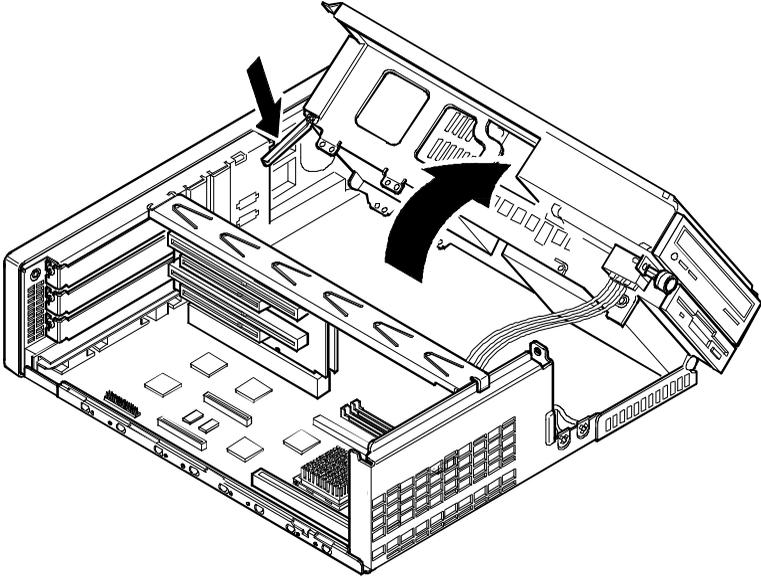


Figure 3 - 11 Unlock front mechanisme



DEC00630-6

Figure 3 - 12 Lock in place

## Removing the 3½-Inch Diskette Drive (CELEBRIS GL)

To remove the 3½-inch diskette drive:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove two screws securing the right side of diskette drive to chassis.
- 5) Open the device bay & power supply subassembly.
- 6) Disconnect power and ribbon cables.
- 7) Remove two screws securing the left side of diskette drive to chassis.
- 8) Slide the diskette drive out of the front of the chassis.

Also refer to "Connecting Diskette and IDE Devices".

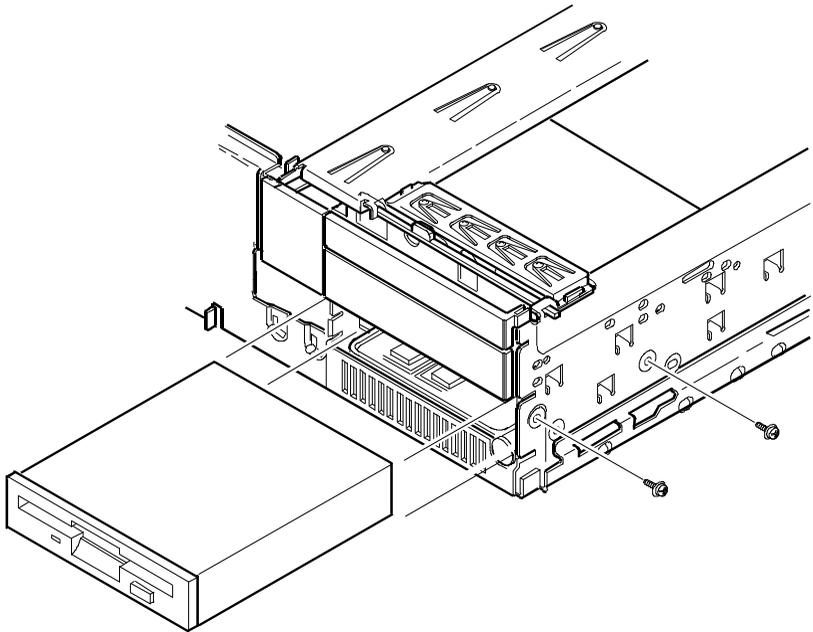


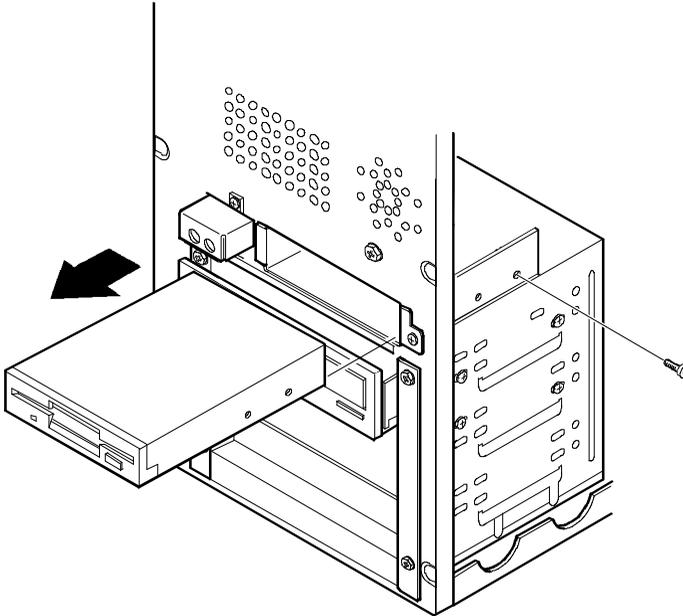
Figure 3 - 13 Removing the 3½-Inch Diskette Drive (CELEBRIS GL)

## Removing the 3½-Inch Diskette Drive (CELEBRIS GL<sup>ST</sup>)

To remove the 3½-inch diskette drive:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove two screws securing the right side of diskette drive to chassis.
- 5) Disconnect power and ribbon cables.
- 6) Slide the diskette drive out of the front of the chassis.

Also refer to “Connecting Diskette and IDE Devices”.



DEC00622-6

Figure 3 - 14 Removing the 3½-Inch Diskette Drive (CELEBRIS GL<sup>ST</sup>)

## Removing a 3½-Inch Device from the Top Device Bay (CELEBRIS GL)

The following procedure describes how to remove a 3½-inch device from the top device bay:

- 1) Remove the top device tray.
- 2) Remove screws securing metal face plate to top device tray.
- 3) Carefully slide tray out of top device bay.
- 4) Disconnect power and ribbon cables.
- 5) Remove 3½-inch device from metal face plate as shown.

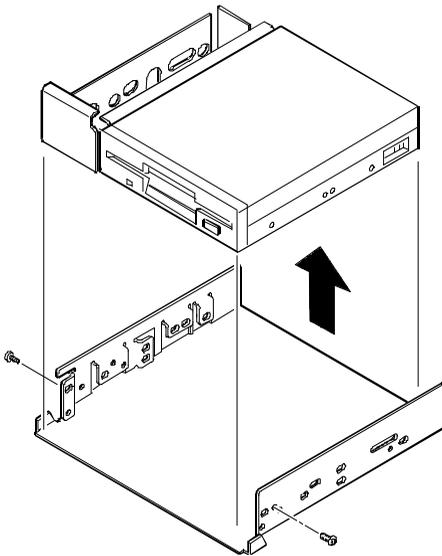


Figure 3 - 15 Removing Metal Face Plate from Top Device Tray

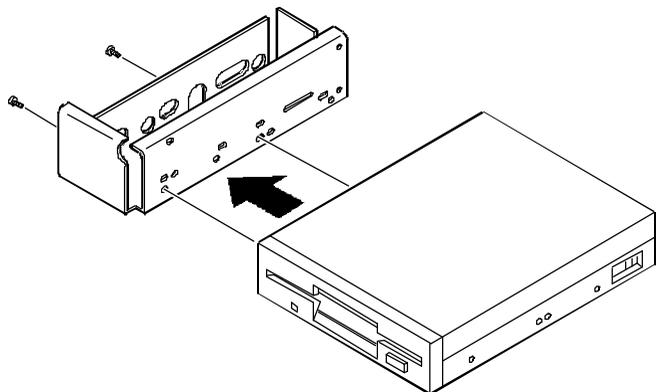


Figure 3 - 16 Removing 3.5 Inch Device from the Metal Face Plate

## Removing a 5¼-Inch Device from the Top Device Bay (CELEBRIS GL)

The following procedure describes how to remove a 5¼-inch device from the top device bay:

- 1) Remove the top device tray.
- 2) Remove screws securing metal face plate to top device tray.
- 3) Disconnect power and ribbon cables.
- 4) Carefully slide tray from top device bay.
- 5) Remove screws , securing 5¼-inch device.

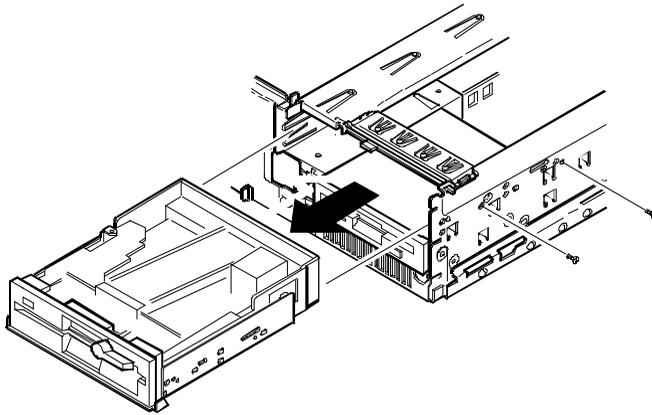


Figure 3 - 17 Slide tray from top device bay

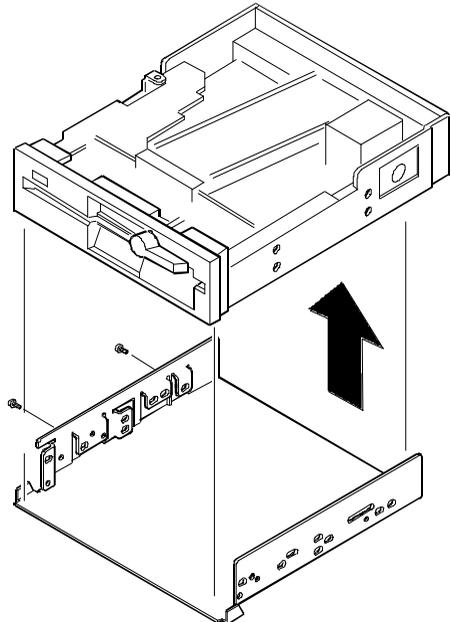


Figure 3 - 18  
Removing 5.25 Inch Device  
Metal Face Plate

## Removing a 5¼-Inch Device (CELEBRIS GL<sup>ST</sup>)

The following procedure describes how to remove 5¼-inch device from the third or fourth device bay:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Remove cover.
- 4) Disconnect CD-ROM power and data cables.
- 5) Remove four screws and slide lower, front device bay assembly out from front of chassis.
- 6) Remove the drive rail from inside the chassis.

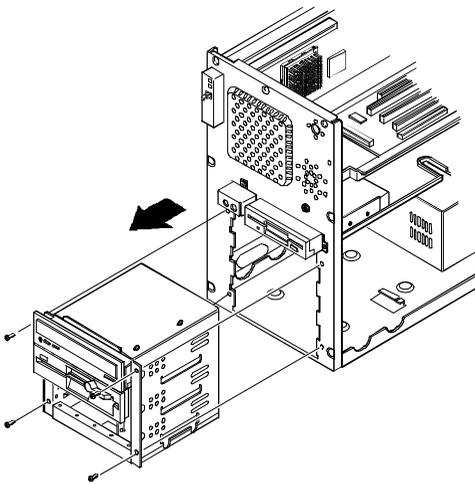


Figure 3 - 19 Removing Lower Front Device Bay Assembly

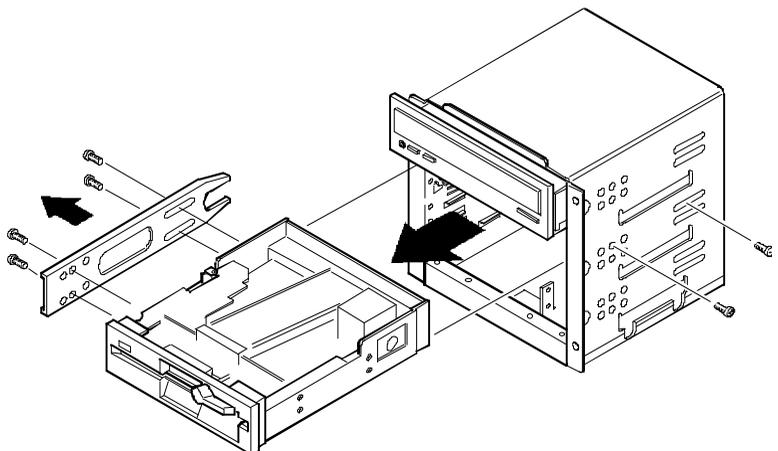
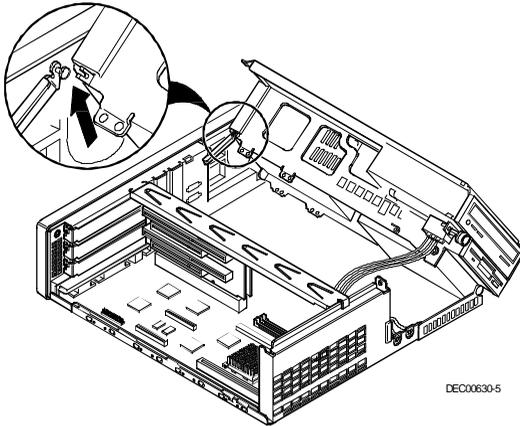


Figure 3 - 20 Removing the 5.25 Inch Device

## Removing a 3½-Inch Mass Storage Device (CELEBRIS GL Internal Drive Bay)

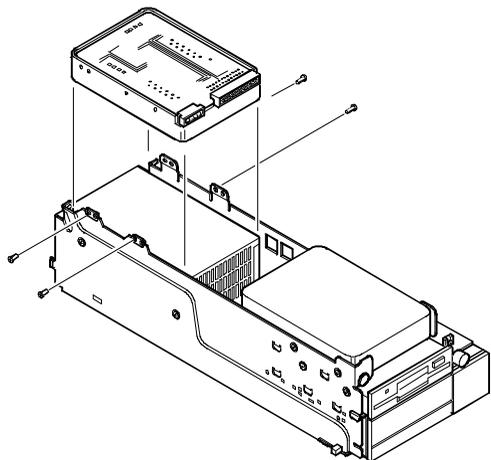
The following procedure describes how to remove a 3½-inch mass storage device from the Slimline internal device bay:

- 1) Open the device bay and power supply subassembly.
- 2) Remove power supply, IDE, and diskette cabling from main logic board noting their proper orientation.
- 3) While holding the device bay and power supply subassembly, carefully release rear latch.
- 4) Carefully slide entire subassembly away from chassis and place upside down on antistatic surface.
- 5) Remove screws securing the 3½-inch mass storage device on the bottom-rear device bay.
- 6) Remove the 3½-inch mass storage device from the bottom-rear device bay.



**Figure 3 - 21 Open Power Supply Subassembly**

DEC00630-5



**Figure 3 - 22 Removing the 3.5-Inch Device**

## Remove a 3½-Inch Device from the Internal 3½-Inch Device Bay (CELEBRIS GL<sup>ST</sup>)

The following procedure describes how to remove a 3½-inch mass storage device from the CELEBRIS GL<sup>ST</sup> internal 3½-inch device bay:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Remove cover.
- 4) Loosen screws securing device bay to chassis.
- 5) Slide device bay toward front of chassis until tabs release.
- 6) Lift device bay away from chassis.
- 7) Remove 3½-inch device from internal 3½-inch device bay.

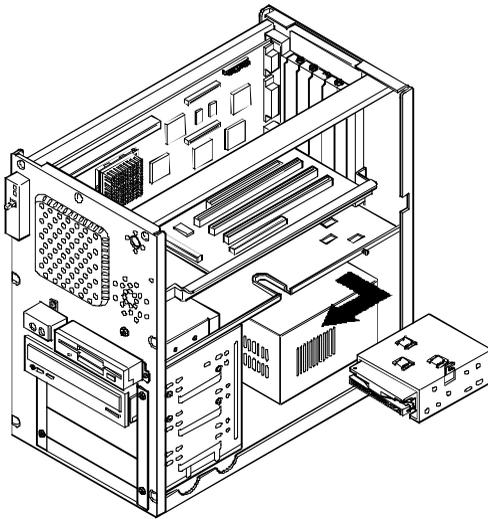


Figure 3 - 23 Removing Device Bay

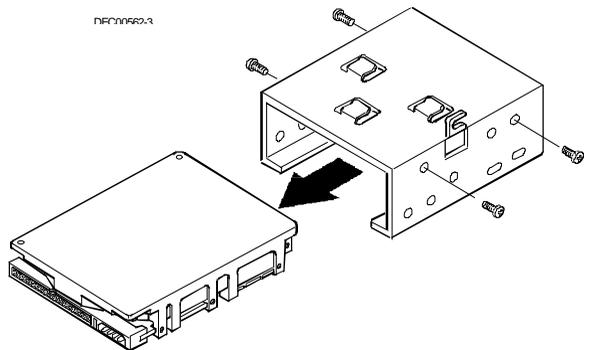


Figure 3 - 24  
Removing 3.5-Inch Device  
from Device Bay

## Removing Main Logic Board

The following procedure describes how to remove the Main Logic Board:

- 1) Turn off external devices and computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove all connectors.
- 5) Remove all expansion boards.
- 6) Open the Device Bay and Power Supply Subassembly (CELEBRIS GL).
- 7) Remove the riser card and bracket.
- 8) Remove screws and lift the board out.

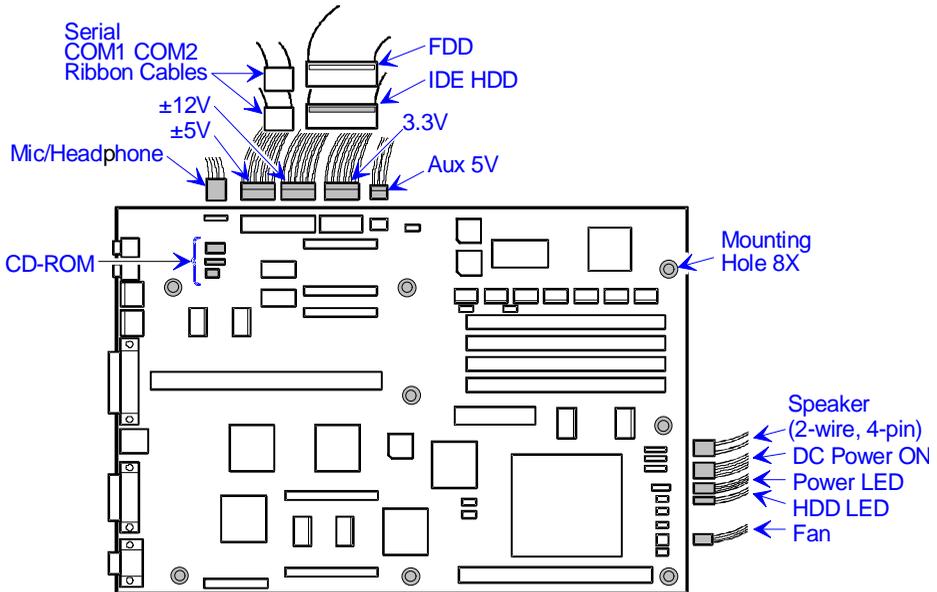


Figure 3 - 25 Removing the Main logic Board

## Removing Power Supply (CELEBRIS GL)

The following procedure describes how to remove the CELEBRIS GL Power Supply:

- 1) Turn off external devices and computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Open the device bay and power supply subassembly.
- 5) Remove power supply, IDE, and diskette cabling from main logic board, noting their proper orientation.
- 6) While holding the device bay and power supply subassembly, carefully release the rear latch.
- 7) Carefully slide entire subassembly away from chassis and place upside down on antistatic surface.
- 8) Loosen two screws securing power on/off switch to chassis.
- 9) Remove screws securing power supply (A) to chassis.
- 10) Remove power supply and power on/off switch (B) from the subassembly.

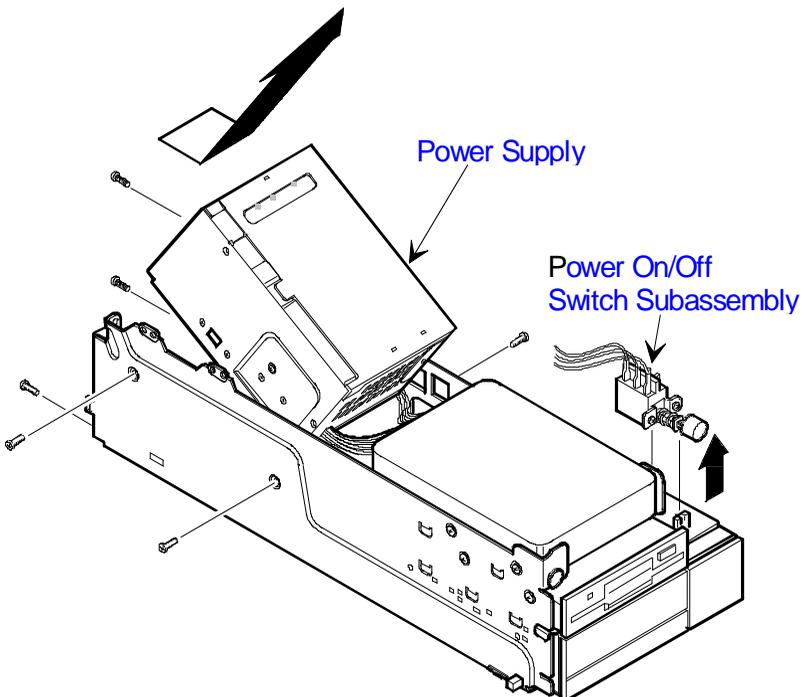


Figure 3 - 26 Removing the CELEBRIS GL Power Supply

## Removing Power Supply (CELEBRIS GL<sup>ST</sup>)

The following procedure describes how to remove the CELEBRIS GL<sup>ST</sup> Power Supply:

- 1) Turn off external devices and computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Disconnect four power supply cables from main logic board.
- 5) Disconnect power supply cables from HDD, CD-ROM, and FDD devices.
- 6) Remove four screws securing power supply to rear panel.
- 7) Remove two screws securing power supply mounting tabs to bottom of chassis.
- 8) Slide power supply toward front of the computer then out.

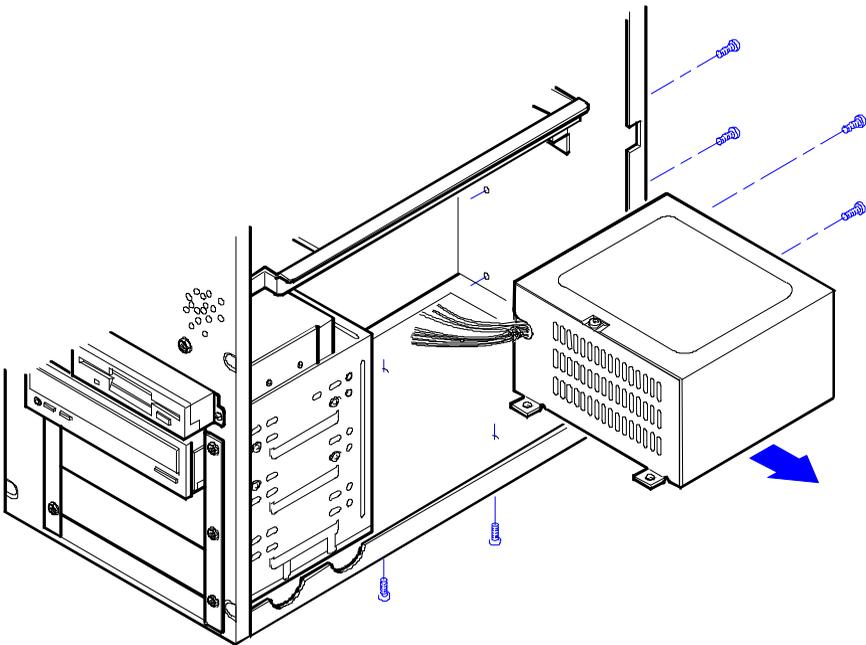


Figure 3 - 27 Removing the CELEBRIS GL<sup>ST</sup> Power Supply

## Removing Riser Card & Bracket (CELEBRIS GL)

To remove the riser card and bracket:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove all expansion boards.
- 5) Carefully pull riser card and bracket from computer.

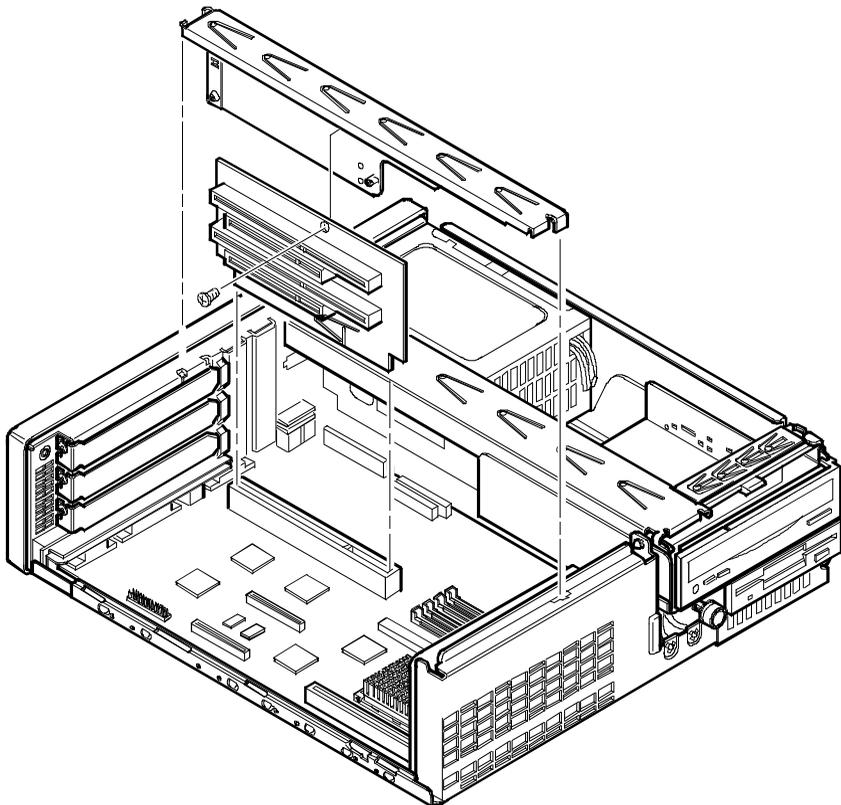


Figure 3 - 28 Removing the CELEBRIS GL Riser Card & Bracket

## Removing Riser Card & Bracket (CELEBRIS GL<sup>ST</sup>)

To remove the riser card and bracket:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove all expansion boards.
- 5) Remove two screws securing bracket to chassis.
- 6) Carefully pull riser card and bracket from computer.

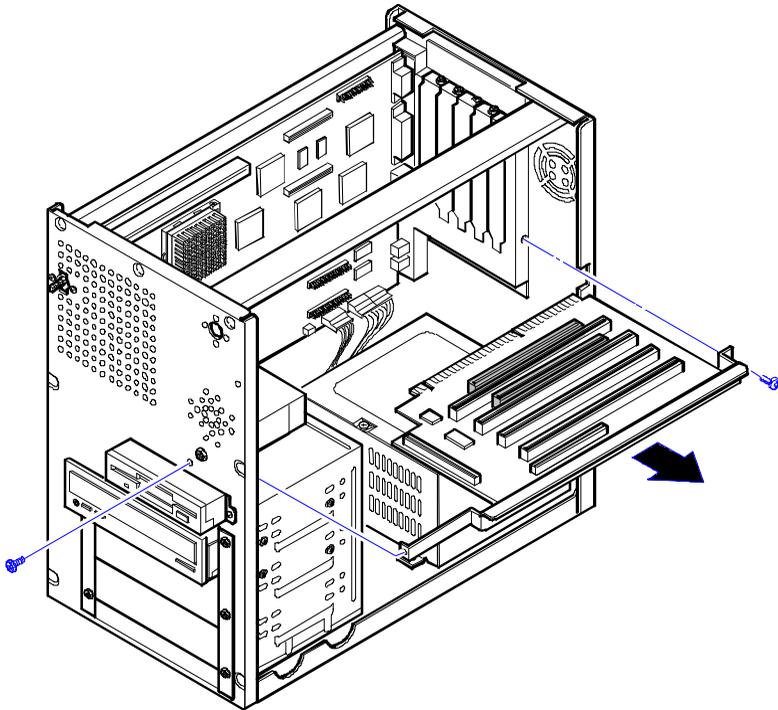


Figure 3 - 29 Removing the the CELEBRIS GL<sup>ST</sup> Riser Card & Bracket

## Removing and Replacing Computer Battery/Real Time Clock (RTC)

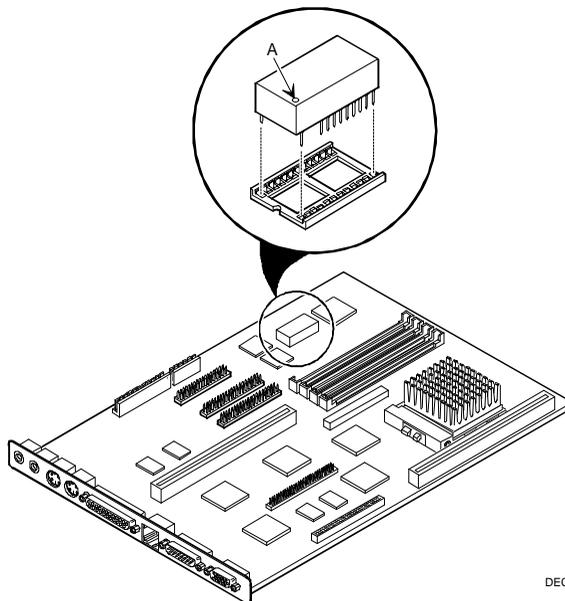
To replace the computer battery/real time clock:

- 1) Record computer configuration settings using BIOS Setup.
- 2) Turn off external devices and computer.
- 3) Disconnect external devices, ac power, and monitor power.
- 4) Unlock and remove cover.
- 5) Carefully extract old RTC from socket.
- 6) Install new RTC.
- 7) Replace and lock cover.
- 8) Connect external devices and restore power.
- 9) Run BIOS Setup utility to reconfigure computer using the settings recorded in step 1.



### CAUTION

Make sure pin 1 on battery is correctly aligned with location on socket (A). Incorrect installation can cause faulty computer operation.



DEC00564-4

Figure 3 - 30 Removing and Replacing the Computer Battery/Real Time Clock

## Installation Procedures

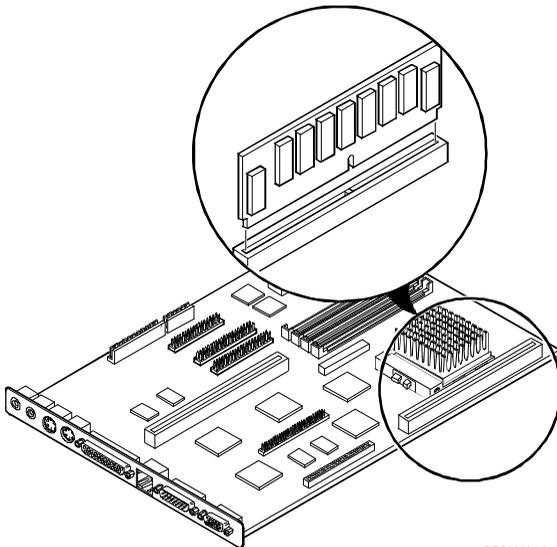
### Installing a Secondary Cache Module

The computer comes with a 256 KB write-back standard or burst secondary cache module. Standard cache refers to asynchronous cache; “burst” cache refers to synchronous (higher performance) cache. You can upgrade to a 512 KB secondary cache module by replacing the existing 256 KB cache module.

To upgrade to a 512 KB cache, perform the following:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove outside cover.
- 4) Holding 256 KB secondary cache module only by top edge, carefully lift it away from main logic board and place it in an antistatic package.
- 5) Holding 512 KB secondary cache module only by top edge, carefully insert it into socket on main logic board. Make sure it fully seats into socket.
- 6) Replace and lock outside cover.
- 7) Connect external devices and restore power.
- 8) Run the BIOS Setup utility by rebooting and pressing **[F2]** before POST completes.

From the Main menu, enable the external cache option. Select *Save Changes and Exit* to configure the computer for the secondary cache.



**Figure 3 - 31 Installing a Secondary Cache Module**

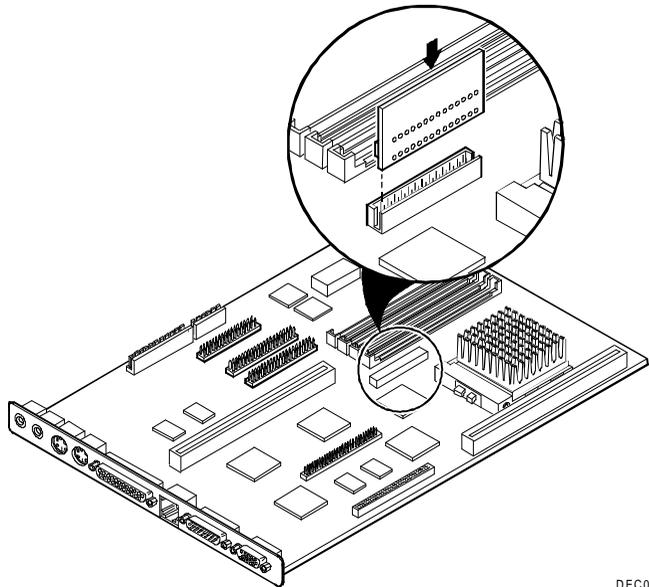
DEC00564-6

## Installing the CPU Voltage Regulator

If the CELEBRIS GL and GL<sup>ST</sup> computer came with a 90 MHz or 100 MHz CPU, it also came with a shunt installed (View the illustration for the location of the shunt). If you want to upgrade the CPU to 120 MHz or 133 MHz, you must remove the shunt and replace it with an industry-standard Voltage Regulator Module (VRM) voltage regulator.

To install an industry-standard VRM:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove outside cover.
- 4) Carefully remove shunt.
- 5) Install VRM voltage regulator.
- 6) Make sure socket on voltage regulator is aligned with pins on main logic board connector.
- 7) Replace and lock outside cover.
- 8) Connect external devices and restore power.



DEC00564-3

Figure 3 - 32 Installing the CPU Voltage Regulator

## Installing a Higher Performance CPU

If the CELEBRIS GL and GL<sup>ST</sup> computer came with a 90 MHz or 100 MHz CPU, it also came with a shunt installed. If you want to upgrade the CPU to 120 MHz or 133 MHz, you must remove the shunt and replace it with an industry-standard Voltage Regulator Module (VRM) voltage regulator.

To install a higher performance CPU:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Lift up on lever to release old CPU.
- 5) Remove old CPU.
- 6) Install new CPU. Make sure pin 1 on CPU is aligned with pin 1 on ZIF socket (A).
- 7) Return release lever to its original position and then set all appropriate CPU jumpers (refer to "Main Logic Board Jumper Settings").
- 8) Replace and lock cover.
- 9) Connect external devices and restore power.

---

**NOTE** The higher-performance CPU you are installing might require a different voltage regulator than the one currently installed. Check the contents of the CPU kit for a voltage regulator.

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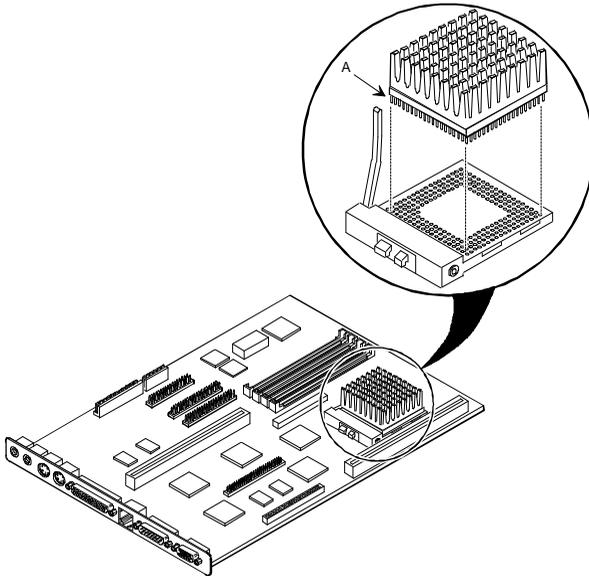


Figure 3 - 33 Installing a Higher Performance CPU

DEC00564-2

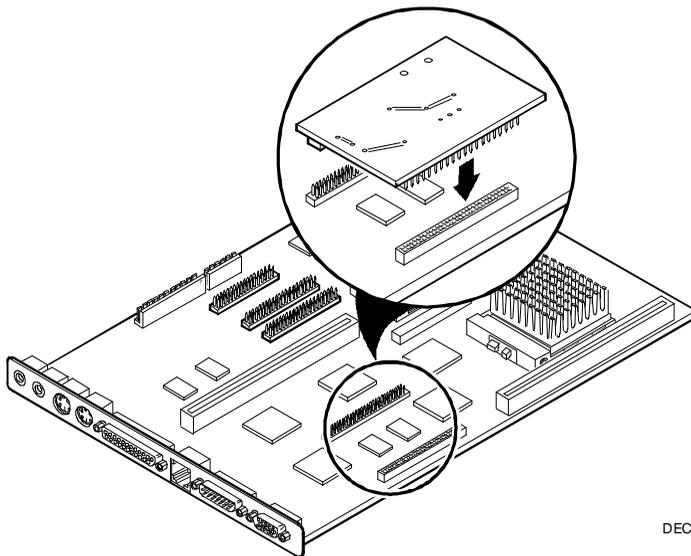
## Installing Video Memory

CELEBRIS GL computers are factory-equipped with 2 MB video memory. This amount can be increased to 8 MB by installing a frame buffer in the designated sockets on the main logic board.

To install the video memory upgrade:

- 1) Turn off the computer.
- 2) Disconnect external devices, ac power, and monitor power.
- 3) Unlock and remove cover.
- 4) Remove upgrade frame buffer from packaging and install in socket.  
Make sure female connector on frame buffer is aligned with male connector on main logic board and male connector on frame buffer is aligned female connector on main logic board.
- 5) Press down on edges of frame buffer, over connectors, slowly and evenly, until firmly seated in connectors on main logic board.
- 6) Replace and secure outside cover. Refer to *"Replacing and Locking the Outside Cover"*.
- 7) Connect external devices and restore power.
- 8) Run the BIOS Setup utility by rebooting and pressing [F2] before POST completes.
- 9) Select Save Changes and Exit.

The computer reboots and now recognizes the amount of new video memory.



DEC00564-5

Figure 3 - 34 Installing Video Memory

## Mass Storage Devices

CELEBRIS GL computers contain either four or five mass storage device bays:

- ◆ The top device bay (for Slimline computers) or the bottom three device bays (for Short Tower computers) can be accessed from the front of the computer and can hold 3½-inch or 5¼-inch half-height devices. Examples include diskette drives, tape backup drives, CD-ROM drives, or hard disk drives.
- ◆ The next-lower device bay (Slimline) contains a factory installed 3½-inch diskette drive.
- ◆ The top device bay (Short Tower) contains a factory installed 3½-inch diskette drive.
- ◆ The bottom-front and rear device bays are not accessible from the front of the computer and only support 3½-inch hard disk drives.

### CELEBRIS GL Diskette and IDE Connections

To install a CELEBRIS GL Diskette or IDE device:

- 1) Open device bay and power supply subassembly.
- 2) Connect supplied ribbon cable to appropriate device as shown in the illustrations. Make sure cable is connected with correct orientation. Most cables and sockets are keyed so you cannot connect them backwards. If the cable or device is not keyed, you must connect pin 1 of cable to pin 1 of device's socket. Pin 1 of cable is on edge with colored stripe. Pin 1 of device's socket should be marked with a number or symbol at one end of socket or with a number or symbol printed on circuit board near one end of socket. If necessary, refer to the device's documentation for pin 1 orientation.
- 3) Connect appropriate power cable to device.
- 4) Close device bay and subassembly.
- 5) Replace and lock cover.
- 6) Connect external devices and restore power.
- 7) Run BIOS Setup utility to configure computer.

---

**NOTE** If only one IDE device is installed, make sure you use the ribbon cable connector furthest from the main logic board connector.

Also, if you have IDE drives installed in both internal drive bays, make sure that the ribbon cable has no twists between the two IDE drives.

---

## Diskette/IDE Connections

### Diskette Connections

<i>Legend</i>	<i>Diskette Drive Component</i>
<b>A</b>	Power supply
<b>B</b>	Power connections
<b>C</b>	Diskette drive connections
<b>D</b>	Main logic board diskette drive connection
<b>E</b>	Diskette drives

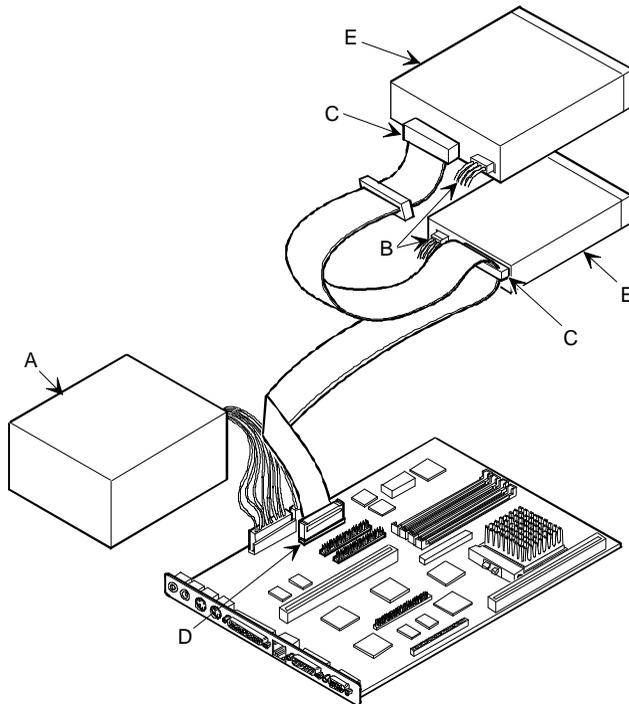


Figure 3 - 35 CELEBRIS GL Diskette Connections

## IDE Connections

<i>Legend</i>	<i>IDE Drive Component</i>
<b>A</b>	Power supply
<b>B</b>	Power connections
<b>C</b>	IDE hard disk drive connections
<b>D</b>	Main logic board IDE drive connections
<b>E</b>	IDE hard disk drive (primary IDE)
<b>F</b>	IDE CD-ROM drive (secondary IDE)

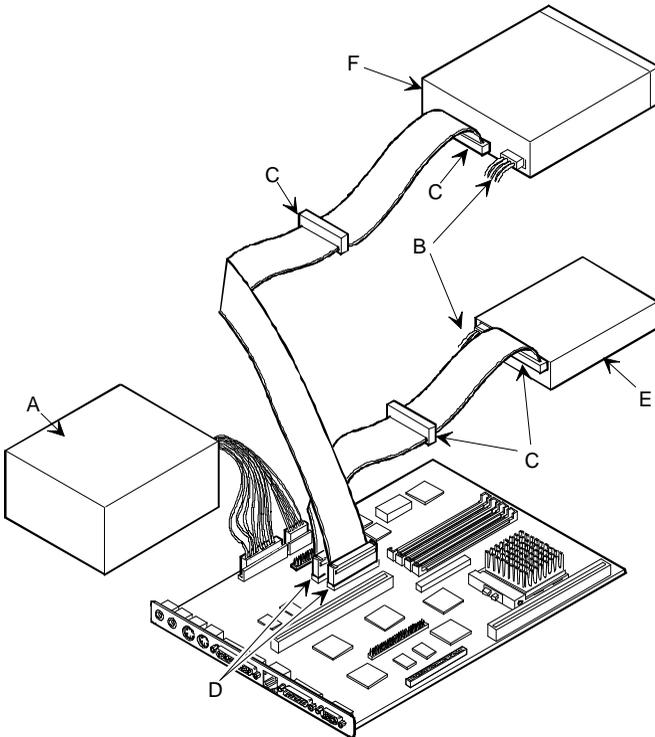


Figure 3 - 36 CELEBRIS GL IDE Connections

## CELEBRIS GL<sup>ST</sup> Diskette and IDE Connections

To install a CELEBRIS GL<sup>ST</sup> Diskette or IDE device:

- 1) Connect supplied ribbon cable to device as shown in the illustration.
- 2) Make sure cable is connected with correct orientation. Most cables and sockets are keyed so you cannot connect them backwards. If the cable or device is not keyed, you must connect pin 1 of cable to pin 1 of device's socket.
- 3) Pin 1 of cable is on edge with colored stripe. Pin 1 of device's socket should be marked with a number or symbol at one end of socket or with a number or symbol printed on circuit board near one end of socket. If necessary, refer to the device's documentation for pin 1 orientation.
- 4) Connect a power cable to device.
- 5) Replace cover.
- 6) Connect external devices and restore power.
- 7) Run BIOS Setup utility to configure computer.

<b>Legend</b>	<b>Component</b>
<b>A</b>	Power supply
<b>B</b>	Power connection
<b>C</b>	Diskette drive connection
<b>D</b>	IDE drive connection
<b>E</b>	Main logic board diskette drive connection
<b>F</b>	Primary IDE interface
<b>G</b>	Secondary IDE interface
<b>H</b>	CD ROM drive connection

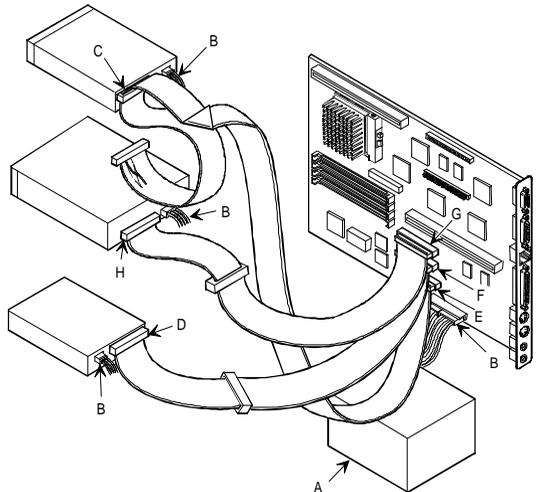


Figure 3 - 37 CELEBRIS GL<sup>ST</sup>  
Diskette and IDE Connections

DEC00824-2

## SCSI Configuration Guidelines

The CELEBRIS GL<sup>ST</sup> includes an onboard SCSI-2 controller on the riser card. The SCSI controller connects directly to the PCI local bus and supports up to seven industry-standard fast, narrow (8-bit), 50-pin SCSI-2 devices.

The computer configuration, SCSI controller, and all SCSI devices must work together for optimum performance.

Use the following guidelines to configure the computer and all SCSI devices:

- ◆ Each SCSI device (including the SCSI controller) must be configured with a unique ID number. The SCSI controller defaults to ID 7. If applicable, the SCSI CD-ROM drive defaults to ID 6. Use the remaining IDs (0-6) to configure hard disk drives and other SCSI devices. Hard disk drives should be configured to start with SCSI ID 0 and the lower ID numbers.
- ◆ The SCSI bus must be terminated at the end. If you use the terminator on the flat ribbon cable, you should remove the termination from any SCSI devices that you are planning to connect.
- ◆ If you choose not to use the terminator on the flat ribbon cable, you must ensure that the last SCSI device is terminated. Refer to the SCSI device's manufacture's documentation for termination locations.
- ◆ If the computer boots from a disk drive other than SCSI, make sure all SCSI device drivers are installed on that disk drive. SCSI devices can be used with an IDE drive only if the IDE drive is configured as drive C.

## Connecting SCSI Devices

To connect SCSI devices, perform the following procedures:

- 1) Connect the internal SCSI cable (flat ribbon cable) to the internal connector (marked "Internal SCSI" on the riser card).
- 2) Put the terminator on the other end of the flat ribbon cable.
- 3) Connect the round extension cable at one end of the external connector (marked "External SCSI").
- 4) Mount the other end of the round extension cable to the external mounting hole on the chassis.
- 5) Connect the SCSI devices. *Refer to the SCSI device manuals for instructions.*
- 6) Enable SCSI using the BIOS Setup utility.
- 7) Reboot the computer.
- 8) If you want to fine tune some SCSI settings, you can use the SCSI Setup Utility by pressing **[Ctrl] + [A]** when the BIOS banner appears during the boot process.  
This utility enables you to change the host controller settings, assign SCSI IDs, and perform low-level formatting on new SCSI devices.

# Chapter 4

# Troubleshooting

The following pages provide initial troubleshooting procedures and tables listing specific problems, probable causes, and recommended actions to take if the computer fails after you configure it or after you install optional hardware or software.

Refer to the documentation supplied with additional options if you are experiencing problems with specific options that you have installed.

## Initial Troubleshooting

Follow these general procedures to troubleshoot the CELEBRIS GL & GL<sup>ST</sup> computer:

- ◆ Press [Ctrl] + [Alt] + [Del]. If the computer fails to boot, turn it off, wait until all hard disk drives spin down completely, and then turn it back on.
- ◆ If the POST detects an error refer to “*Computer Messages*” and take the appropriate steps to correct the problem. After the problem has been resolved, restart the computer.
- ◆ Run the BIOS Setup utility.
- ◆ Make sure all necessary changes have been made to the CONFIG.SYS and AUTOEXEC.BAT files
- ◆ Make sure all necessary video, printer, and application device drivers are properly installed.
- ◆ Ensure that all cables and connections are secure.
- ◆ Run the *QAPLUS/fe* advanced diagnostic software.
- ◆ If these steps do not identify and/or correct the problem, perform the specific troubleshooting procedures appropriate to the circumstances.

---

**NOTE** If you need to return a failed component, pack it in its original container and return it to Digital for service.

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**Fill in the appropriate fields of the Part Exchange Form with the relevant error information!!**

## Beep Codes

When POST finds an error and cannot display a message, the computer's speaker emits a series of beeps to indicate the error. For example, video failure or configuration error is indicated by a 1 - 2 beep code (a burst of three beeps , one long beep followed by two short beeps).

The following table lists other fatal error and their associated beep codes.

*Each code represents the number of short beeps that are grouped together.*

Fatal errors (errors that lock up the computer) are generally the result of a failed main logic board or some other add-on component (SIMM, BIOS, computer battery, etc.).

<b>BeepCode</b>	<b>Error Message</b>
<b>1 - 2</b>	Video failure or configuration error
<b>2 - 2 - 3</b>	BIOS ROM checksum
<b>3 - 1 - 1</b>	Test DRAM refresh
<b>3 - 1 - 3</b>	Test keyboard controller
<b>3 - 4 - 1</b>	Test 512K base address lines
<b>3 - 4 - 3</b>	Test 512K base memory
<b>2 - 1 - 2 - 3</b>	Check ROM copyright notice
<b>2 - 2 - 3 - 1</b>	Test for unexpected interrupts

## POST and Boot Messages

The POST displays messages to alert you to errors in hardware, software, and firmware or to provide operating information about the computer.

Each time the POST displays a message on the screen, the computer's speaker beeps twice. If an error occurs before the monitor is initialised, specific beep codes sound to alert you to a problem. The following table lists a general grouping of system messages. In addition, each message is accompanied by text describing the message and in most cases, a recommended solution to the problem.

**NOTE**      Italics indicate variable parts of a message such as memory addresses, hexadecimal values, and so on. These messages can differ at each occurrence.

<b>Message</b>	<b>Problem</b>	<b>Solution</b>
<b>Diskette drive A error/Diskette drive B error</b>	Diskette drive has failed.	Run the BIOS Setup utility. Check all connections. If the problem persists, replace the defective diskette drive and/or drive cable.
<b>Extended RAM failed at offset: <i>nnnn</i></b>	Extended memory failed or configured incorrectly.	Make sure SIMMs are installed correctly If the problem persists, replace defective SIMMs.
<b>Fixed Disk 0 failure Fixed Disk 1 failure Fixed Disk Controller failure</b>	Hard disk drive and/or controller failed.	Run the BIOS Setup utility. Check all connections. If the problem persists, replace the defective hard disk drive and/or controller.

## POST and Boot Messages (continued)

<b>Message</b>	<b>Problem</b>	<b>Solution</b>
<b>Incorrect Drive A type - run SETUP Incorrect Drive B type - run SETUP</b>	Diskette drive A and/or B not correctly identified in the BIOS Setup utility.	Run the BIOS Setup utility and properly identify diskette drive A and/or B.
<b>Invalid NVRAM media type</b>	NVRAM access failed.	Run the BIOS Setup utility and restore all settings to original values. If the problem persists, replace the defective component.
<b>Keyboard controller error Keyboard error Keyboard locked - Unlock key switch</b>	Keyboard and/or keyboard controller failed.	Check the keyboard connection. If the connection is secure, the keyboard or keyboard controller might have failed. If the problem persists, replace the defective keyboard and/or controller.
<b>Monitor type does not match CMOS - Run SETUP</b>	Monitor type has been incorrectly specified.	Run the BIOS Setup utility and set the correct monitor type.
<b>Operating system not found</b>	The operating system cannot be found on drive A or drive C.	Run the BIOS Setup utility and correctly identify drive A or drive C. Correctly install the operating system.
<b>Press &lt;F1&gt; to resume, &lt;F2&gt; to Setup</b>	This message appears after any recoverable error message.	Press <F1> to reboot or <F2> to enter the BIOS Setup utility to make any necessary changes.
<b>Real time clock error</b>	Real-time clock failed BIOS test.	Replace real-time clock and then run the BIOS Setup utility to restore previous configuration information.
<b>Shadow RAM Failed at offset: nnnn</b>	Shadow RAM failed.	Run the BIOS Setup utility and disable failed shadow memory region.
<b>System battery is dead - Replace and run SETUP</b>	Battery/real-time clock failed.	Replace the battery and then run the BIOS Setup utility to restore previous configuration information.
<b>System cache error - Cache disabled</b>	RAM cache failed.	Run the BIOS Setup utility and restore all settings to original values. If the problem persists, replace the defective cache memory.
<b>System CMOS checksum bad - run SETUP</b>	Battery/real-time clock failed.	Correct the address conflict using the BIOS Setup utility. If the problem persists, replace the battery/real-time clock.
<b>System RAM failed at offset: nnnn</b>	System RAM failed.	Run the BIOS Setup utility and restore all settings to original values. If the problem persists, replace the defective memory.
<b>System timer error</b>	The computer's timer test failed.	Run the BIOS Setup utility and restore all settings to original values. If the problem persists, replace the defective component.

## POST and Boot Informational Messages

**NOTE** Italics indicate variable parts of a message such as memory addresses, hexadecimal values, and so on. These messages can differ at each occurrence.

<b>Message</b>	<b>Description</b>
<b><i>nnnn</i> Cache SRAM Passed</b>	Where <i>nnnn</i> is the amount of computer cache (in kilobytes) that tested successfully.
<b>Entering SETUP</b>	BIOS Setup utility runs.
<b>Extended RAM Passed</b>	Where <i>nnnn</i> is the amount of extended memory (in kilobytes) that tested successfully.
<b><i>nnnn</i> Shadow RAM passed</b>	Where <i>nnnn</i> is the amount of shadow RAM (in kilobytes) that tested successfully.
<b>System BIOS shadowed</b>	This indicates that your computer's BIOS was successfully copied to shadow RAM.
<b><i>nnnn</i> System RAM passed</b>	Where <i>nnnn</i> is the amount of system RAM (in kilobytes) that tested successfully.
<b>UMB upper limit segment address: <i>nnnn</i></b>	Displays the address of the upper limit of UMB. This indicates the released segments of the BIOS that can be reclaimed by a virtual memory manager.
<b>Video BIOS shadowed</b>	This indicates that your computer's video BIOS was successfully copied to shadow RAM.

## Computer Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>No response when the computer is turned on</b>	Main logic board failure.	Replace main logic board.
	Main logic board jumpers incorrectly set.	Set all appropriate jumpers (Refer to "Main logic board jumpers")
	CPU has failed.	Replace CPU.
<b>Power is on, but there is no screen display</b>	Brightness and contrast controls are not correctly set.	Adjust the brightness and contrast controls.
	The monitor-off timer has shut the monitor off.	Press [Shift] to reactivate monitor.
	Monitor cable is incorrectly installed.	Check all monitor connections.
	Incorrect VGA drivers installed	Install the correct VGA drivers. Refer to "Utilities & Video Drivers".
	Video controller has failed	Replace the video controller.

**Computer Troubleshooting** (continued)

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>Computer operates incorrectly after installing optional expansion board</b>	Expansion board installed incorrectly.	Remove expansion board and reinstall.
	Did not run ICU to configure expansion board before installation.	Run the ICU to properly configure expansion board and then reboot the computer. Refer to the supplied ICU documentation.
	Expansion board has failed.	Remove expansion board and reboot. If computer boots without errors, replace expansion board.
<b>Computer operates incorrectly after installing optional SIMMs</b>	SIMMs installed incorrectly.	Remove SIMMs and reinstall.
	Did not rerun BIOS Setup utility.	Rerun BIOS Setup utility.
	BIOS Setup utility changes not saved before exiting.	Rerun BIOS Setup utility and save changes.
<b>Computer operates incorrectly after installing optional external cache module</b>	SIMMs have failed.	Remove SIMMs and reinstall Make sure bank 0 is filled with the correct SIMM size, speed, and type. Replace SIMMs.
	External cache module installed incorrectly.	Remove external cache module and reinstall.
	External cache module has failed.	Replace external cache module.
<b>Computer fails to retain setup information Computer does not boot from an IDE hard disk drive</b>	Computer battery has failed.	Replace computer battery.
	Operating system software is not installed on the IDE hard disk drive.	Install the appropriate operating system.
	IDE hard disk drive is not correctly formatted or the requested partition does not exist.	Format the IDE hard disk drive or partition the IDE hard disk drive using the supplied operating system software.

**Computer Troubleshooting** (continued)

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>Computer does not boot from an IDE hard disk drive</b>	<p>There is no software on the requested partition.</p> <p>IDE hard disk drive jumpers incorrectly set.</p> <p>IDE drive type incorrect.</p> <p>Loose cables.</p> <p>Onboard IDE interface disabled.</p> <p>IDE hard disk is connected to the wrong IDE connector.</p> <p>There might be a boot sector virus.</p> <p>Hard disk boot sector is missing.</p>	<p>Install software on the requested partition.</p> <p>Refer to the supplied IDE hard disk drive kit installation instructions.</p> <p>Run the BIOS Setup utility to identify the correct drive type.</p> <p>Secure all cable connections.</p> <p>Run the BIOS Setup utility and set the IDE controller option to "Enabled".</p> <p>Connect the boot disk to the inner IDE connector on the main logic board.</p> <p>Run appropriate software to detect and remove viruses. (F-PROT).</p> <p>For DOS, boot from a DOS diskette then enter the following commands:  <b>c:</b>  <b>cd\dos</b>  <b>fdisk/mbr.</b></p>
<b>Computer does not recognize an internal or external SCSI device</b>	<p>SCSI device jumpers incorrectly set</p> <p>SCSI cable not terminated.</p> <p>SCSI device not plugged in.</p> <p>Terminating resistors not removed from the SCSI device.</p> <p>SCSI adapter failure.</p> <p>SCSI ID conflicts.</p>	<p>Refer to the supplied SCSI device kit installation instructions.</p> <p>Terminate each end of the SCSI bus.</p> <p>Check power and SCSI cables.</p> <p>Remove terminating resistors.</p> <p>Replace SCSI adapter.</p> <p>Set SCSI IDs correct.</p>

**Computer Troubleshooting** (continued)

<b><i>Problem</i></b>	<b><i>Possible Cause</i></b>	<b><i>Action</i></b>
<b>Computer does not boot from an internal SCSI hard disk drive</b>	Operating system software is not installed on the SCSI hard disk drive.	Install the appropriate operating system on the SCSI hard disk drive.
	Requested partition does not exist.	Partition the SCSI hard disk drive and then reload the operating software.
	Computer not configured for SCSI hard disk drive operation.	Run the BIOS Setup utility and set the IDE controller option to "Disabled". This disables the IDE interface Note: If you have both IDE and SCSI hard disk drives installed, the computer uses the IDE hard disk drive as the boot device.
<b>Computer does not boot from a target diskette drive</b>	Drive ID incorrectly set.	Make sure the drive ID is correctly set.
	Diskette drive not enabled.	Run the BIOS Setup utility to enable the diskette drive.
	Diskette boot option disabled.	Run the BIOS Setup utility and set and set the proper boot sequence."
	Onboard diskette controller disabled.	Run the BIOS Setup utility and set the diskette controller option to "Enabled".
<b>No response to keyboard commands</b>	Diskette does not contain start-up files.	Insert a diskette with the correct start-up files.
	Keyboard is password protected.	Enter the keyboard password.
<b>No response to mouse commands</b>	Keyboard is connected to the mouse port.	Power down the computer and connect the keyboard to the keyboard port.
	Mouse is password protected.	Enter the keyboard and mouse password.
	Mouse is connected to the keyboard port.	Power down the computer and connect the mouse to the mouse port.
	Mouse driver not installed.	Install the appropriate mouse driver.

## Disk Drive Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>IDE/SCSI hard disk drive cannot read or write information</b>	Incorrect disk drive jumper settings.	Refer to the supplied kit installation instructions.
	Loose or incorrectly installed cables.	Make sure all cables are correctly installed.
	IDE drive type incorrect.	Run the BIOS Setup utility to identify the correct drive type.
	Onboard IDE interface disabled.	Run the BIOS Setup utility and set the IDE controller option to "Enabled".
	IDE/SCSI hard disk drive is not correctly formatted or partitioned.	Format and partition as required using the supplied operating system.
<b>Target diskette drive cannot read or write information</b>	Onboard diskette controller disabled.	Run the BIOS Setup utility and set the diskette controller to "Enabled".
	Diskette write protection is enabled.	Run the BIOS Setup utility and set the diskette write protection to "Disabled".

## Network Interface Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>Power is on, LAN address is installed on server; system hangs</b>	Correct software not installed.	Install correct software.
<b>System is on, no keyboard response</b>	Incorrect IRQ.	Check BIOS setup.
<b>Network doesn't start</b>	Network cable is loose	Secure cable. Ensure that no more than one Ethernet cable is connected at one time.
	Conflict exists with another device adapter; incorrect IRQ setting.	Check BIOS setup.

## Audio Troubleshooting

<b><i>Problem</i></b>	<b><i>Possible Cause</i></b>	<b><i>Action</i></b>
<b>Nothing seems to work</b>	Address contention. Two or more devices may be trying to access the same address.	Check IRQ, I/O address, and DMA settings. Change settings as required.
	Device drivers missing or improperly installed.	Reinstall device drivers.
<b>Audio does not work</b>	Cables improperly connected or not fully connected.	Check cable connections for proper location. Reconnect cables.
	Sound, MIDI, mixer drivers not installed.	Check the error messages for the necessary drivers. In Windows Control Panel, select "Drivers", then "Add" and install the necessary driver(s).
	Cables loose or not properly connected.	Make sure speaker and mic plugs are in correct jacks. Reconnect cables.

## Monitor Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
<b>No screen display</b>	Configuration error.	Run the BIOS SETUP UTILITY to configure the computer for VGA operation. Set the jumper for VGA operation. Refer to "Main Logic Board Jumpers".
	Monitor brightness and contrast controls are incorrectly set.	Adjust the monitor brightness and contrast controls.
<b>No monitor display while loading Windows video drivers</b>	Monitor type incorrectly set.	Set the correct monitor type. Refer to appropriate video driver documentation.
<b>Distorted-rolling-or flickering screen display-or wrong/uneven color</b>	Monitor incorrectly adjusted.	Adjust accordingly.
	Monitor signal cable incorrectly installed.	Straighten any bent connector pins and then reconnect.
<b>Color monitor displaying monochrome</b>	Computer was turned on before the monitor was turned on.	Turn off the computer, turn on the monitor, then turn the computer back on.
	Video jumper incorrectly set.	Set the jumper for VGA operation.
<b>Monitor fails to switch to high-resolution mode</b>	Appropriate high-resolution video drivers are not installed or incorrectly installed.	Correctly install all appropriate high-resolution video drivers. Refer to the documentation supplied with the monitor and/or video drivers.
<b>Monitor display not centered while loading Windows video drivers</b>	Monitor type incorrectly set.	Set the correct monitor type. Refer to appropriate video driver documentation.

## QAPLUS/FE Error Messages

<b>Component</b>	<b>Messages</b>	<b>Solution</b>
<b>CPU</b>	Arithmetic Function Failed. General Functions Failed. Exception Interrupt in Protected Mode. Refresh Failure. Logic Functions Failed.	Reset CPU. Replace CPU.
<b>Hard disk</b>	Butterfly Cylinder Access Test Failed. Cylinder 0 Errors Random Cylinder Access Failed. Linear Cylinder Access Failed.	Low-level format hard disk. Replace disk.
<b>Hard drive / controller</b>	Controller Diagnostic Test Failed.  Questionable Controller Card.  Hard drives failed.	Run Setup, Check connections.  Reset controller, Replace controller.  Replace disk.
<b>Floppy diskette</b>	Media Mismatch.  Drive Not Ready.  Write Protected Media.  Unformatted Media.	Use known good diskette.  Check size and density of diskette. Close drive door.  Remove write protection.  Format diskette.
<b>Floppy drive</b>	Floppy Drives Failed.	Check connections, Replace drive.
<b>Battery/clock</b>	Clock Stopped. Invalid Date. RTC Interrupt Failed.	Run Setup.  Replace battery/clock.
<b>CMOS</b>	CMOS Clock Test Failed.	Change time from Setup menu in QAPLUS.
<b>Serial port</b>	COM port failed. Serial Chip Error. Serial Compare Error. Serial Timeout Error.	Check COM device. Check connections. Replace COM device. Replace COM device.
<b>Video adapter</b>	Video Failed.  Error in Video Buffer.	Replace video adapter.  Replace video adapter.

# Chapter 5

# Device Mapping

This section provides a series of tables listing mapping and address information related to computer memory and various main logic board devices (keyboard controller, interrupt controller, DMA controller, etc.).

The computer's memory and address locations are allocated at the factory to operate within a standard PC environment. However, due to the number of optional devices and/or expansion boards that are available, sometimes memory and address locations need to be changed. For example, some network expansion boards require a specific memory location. If that location is already allocated, a memory conflict results and the expansion board will not operate as expected. Note that some memory, I/O and interrupt locations can be changed using the BIOS Setup utility.



**CAUTION**

Before changing any memory or address location, refer to the documentation supplied with the optional device, expansion board, or software application and make sure adequate information is available.

## CPU Memory Address Map (Full Range)

<i>Range</i>	<i>Function</i>	<i>Notes</i>
<b>0 KB to 640 KB</b>	Main memory	PC compatibility range
<b>640 KB to 1024 KB</b>	Main memory	PC compatibility range (ISA memory lower limit)
<b>1 MB to 16 MB</b>	Main memory Memory space gap	ISA memory upper limit
<b>16 MB to 128 MB</b>	Main memory	Computer memory upper limit

## I/O Address Map

<i>Range (hexadecimal)</i>	<i>Function</i>
<b>000 - 00F</b>	DMA controller one
<b>020 - 021</b>	Interrupt controller one
<b>040 - 043</b>	Interval timer
<b>060 - 06F</b>	Keyboard controller
<b>070 - 07F</b>	Real-Time Clock (RTC), NMI
<b>080 - 08F</b>	DMA page register
<b>0A0 - 0A1</b>	Interrupt controller two
<b>0C0 - 0CF</b>	DMA controller two
<b>0F0</b>	Clear math co-processor busy
<b>0F1</b>	Reset math co-processor
<b>0F8 - 0FF</b>	Math co-processor
<b>170 - 177</b>	Secondary IDE controller
<b>1F0 - 1F7</b>	Primary IDE controller
<b>26E</b>	Super I/O index register
<b>26F</b>	Super I/O data register
<b>220 - 22F</b>	Audio (sound)
<b>278 - 27A</b>	LPT2
<b>2E8 - 2EF</b>	COM4
<b>2F8 - 2FF</b>	COM2
<b>378 - 37A</b>	LPT1
<b>3BC - 3BE</b>	LPT3
<b>3E8 - 3EF</b>	COM3
<b>3F0 - 3F7</b>	Diskette (floppy disk) controller
<b>3F6 - 3F7</b>	Primary/secondary IDE controller (alt status, device address)
<b>3F8 - 3FF</b>	COM1
<b>4D0</b>	Edge/Level Control Register - INTCNTRL1
<b>4D1</b>	Edge/Level Control Register - INTCNTRL2
<b>CC00</b>	Programming chip select

## Computer Interrupt Levels

<i>Interrupt Number</i>	<i>Interrupt Source</i>
<b>IRQ0</b>	Timer tick
<b>IRQ1</b>	Keyboard controller
<b>IRQ2</b>	Cascade interrupt
<b>IRQ3</b>	COM2, COM4, if enabled
<b>IRQ4</b>	COM1, COM3, if enabled
<b>IRQ5</b>	Audio
<b>IRQ6</b>	Diskette (floppy disk) drive, if enabled
<b>IRQ7</b>	LPT1, LPT3, if enabled
<b>IRQ8</b>	Real Time Clock (RTC)
<b>IRQ9</b>	Video
<b>IRQ10</b>	Network
<b>IRQ11</b>	Reserved
<b>IRQ12</b>	Mouse interrupt, if enabled
<b>IRQ13</b>	Math co-processor
<b>IRQ14</b>	IDE primary, if enabled
<b>IRQ15</b>	IDE secondary, if enabled

## DMA Channel Assignment

<i>Channel</i>	<i>Controller</i>	<i>Function</i>
<b>0</b>	<b>1</b>	Not used or audio
<b>1</b>	<b>1</b>	Audio
<b>2</b>	<b>1</b>	Diskette (floppy disk) controller, if enabled
<b>3</b>	<b>1</b>	ECP
<b>4</b>	<b>2</b>	Cascade DMA
<b>5</b>	<b>2</b>	Not used
<b>6</b>	<b>2</b>	Not used
<b>7</b>	<b>2</b>	Not used

## Chapter 6 Pass / Fail Criteria

As Final Acceptance Test the following tests should be run to meet the Pass/Fail criteria:

- 1) **Successful Completion of the POST tests.**
- 2) **Successful Completion of the following QAPLUS/fe module tests (one pass):**

- ◆ System Board (All Tests)
- ◆ Memory (All Tests)
- ◆ Video (All Tests)
- ◆ Hard Disk (All Tests, except: Sequential write/read and Sequential write/random read (**Destructive Tests !!**))
- ◆ Floppy Disk (All Tests)
- ◆ Keyboard (All Tests)
- ◆ COM Ports (All Tests)
- ◆ LPT Ports (All Tests)
- ◆ Pointer device (All Tests)

- 3) **Successful Bootstrap of the on the computer installed Operating System.**

Operating Systems Supported:

- ◇ MS-DOS version 6.22. and earlier
- ◇ Windows 3.11
- ◇ Windows 95
- ◇ Windows NT Workstation
- ◇ OS/2 version 3.0. Warp
- ◇ SCO UNIX Version 3.2.4
- ◇ Novell Netware 3.12 client

Remove any software that was put on the hard drive to enable repair of the system before shipping.

When completed carefully clean outside of unit with cleaning solution.

# Appendix A

# Services Notes

This appendix contains the current *Service Notes* for the CELEBRIS GL & GL<sup>ST</sup> product line.

## Recommended Tools

The following tools will be needed for servicing Digital PC systems. Note that test equipment must be in calibration.

- ◆ Multimeter (4 1/2 digit)
- ◆ A philips screwdriver
- ◆ An antistatic wrist strap

## Other Needed Materials

Cleaning agent should be an all purpose cleaner that is used in-house.

## Required Special Tools

None.

## Remedial Diagnostic Test Software

- ◆ *QAPLUS/fe* , PC Advanced Diagnostic Software, latest version.  
*Partnumber : 22-00908-06*

## Recommended Virus Detection and Cleanup Software

- ◆ *F-PROT*, Virus Detection and Cleanup Software, latest version.

### Network locations:

North America, South America, Australia and New Zealand:

*MINOTR::USER6:[VIRUS.F-PROT]*

Europe, Africa, Middle and Far East:

*VARDAF::EUROPUB:[VIRUS\_SCANNER.F-PROT]*

## ECO/FCO Information

### BIOS version information

Refer to the Digital DECpc Bulletin Board Support , for the latest information on BIOS upgrades

**Network locations:**

North America, South America, Australia and New Zealand:  
*PCBUHD::DKB300:[WC30.BBSFILES]*

Europe, Africa, Middle and Far East:  
*SUTRA::D6:[PUBLIC].*

## Appendix B

## Useful Information

## Related Documentation

<b>Document Titles</b>	<b>Order #'s</b>
<b>CELEBRIS GL Quick Reference Guide</b>	EK-A0835-RG
<b>SMM Spares Catalogue</b>	EK-A0815-RG
<b>CELEBRIS GL Quick Setup Guide</b>	ER-950WW-IA (English) ER-950WW-IG (German) ER-950WW-II (Italian) ER-950WW-IS (Spanish) ER-950WW-IP (French) ER-950WW-IJ (Japanese)
<b>CELEBRIS GL User's Guide</b>	ER-950WW-UA (English) ER-950WW-UG (German) ER-950WW-UI (Italian) ER-950WW-US (Spanish) ER-950WW-UP (French) ER-950WW-UJ (Japanese)
<b>ISA Configuration Utility User's Guide (English)</b>	ER-PNPAL-UA (English) ER-PNPAL-UG. A01 (German) ER-PNPAL-UI. A01 (Italian) ER-PNPAL-US. A01 (Spanish) ER-PNPAL-UP. A01 (French)
<b>Addendum sheet</b>	ER-XAGAT-AA
<b>Warranty &amp; service card (multi-lingual)</b>	EK-PCHWW-CM

## On-Line Bulletin Boards

The most current product information and technical support is also available on line. The most current device drivers, Setup diskettes and technical tips can be found on all of these bulletin boards.

◆ ***DECpc Bulletin Board Server***

DECpc BBS provides an easy-to-use, menu-driven bulletin board providing on-line access to the latest PC product information, device drivers, shareware and freeware.

For access to the DECpc BBS, dial : **xx33 9260312**

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